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ABSTRACT

This collection consists of four papers dealing with the delivery of health care in the People's Republic of China. The papers resulted from a study tour of the Chinese health care system in June 1980. Included in the volume are the following papers: "A Comparison of Selected Aspects of the Health Care Systems of the Socialist Federal Republic of Yugoslavia and the People's Republic of China," by Ellen Hooker; "Ethics and Health Care in the People's Republic of China," by Bobby E. Adams; "Observations on Care of the Physically Disabled in the People's Republic of China," by Ann McElroy; and "China's Revolution in Health Care: Will It Continue?" by Madge Attwood. Extensive references are included. (MN)

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Observations of Health Care in China: Four Perspectives

Madge Attwood, Editor

May, 1983

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Preface

The Division of Health Occupations Education was established in 1972 within the Department of Vocational and Technical Education. The mission of the division is to prepare health professionals for leadership in educational roles. Hallmarks of leaders are creativity, imagination and vision; imagination and vision in turn are stimulated by exploring, investigating, and analyzing promising trends and practices. Firsthand observation of the profound changes in health care in the People's Republic of China (PRC) since 1949 and exploration of the factors that led to change is a fitting area of inquiry for health professionals. The PRC has succeeded in improving the health of its people to an extent greater than any of the third world countries. What happened, how it happened, and why it happened are the topics of this monograph.

Madge Attwood, Chair
Division of Health Occupations
Education
University of Illinois
May, 1983

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Introduction

In June, 1980, 13 health professionals from 6 different health disciplines and one professor of medical ethics traveled for 16 days through the People's Republic of China (PRC) studying a portion of China's health care system represented by health facilities and personnel in 5 cities and 2 rural communes. Our group consisted of 2 physicians, 6 nurses, 2 physical therapists, an occupational therapist, a medical technologist, a medical records administrator, a health educator, and a clergyman. The study tour was an experience based course, "Comparative Health Systems," sponsored by the University of Illinois/Urbana Extramural Programs Office and the Department of Vocational and Technical Education. The purpose of the course was to gain firsthand knowledge of China's remarkable advances in illness prevention and health care.

In preparation for their experience, participants were given a reading list, a syllabus and a detailed outline of the itinerary. Recommended as readings in preparation for the tour were Victor and Ruth Sidel's "Serve the People," Joshua Horn's "Away With All Pests" and David Lampton's "Politics of Health Care in China." Letters of introduction from Stanley Ikenberry, president of the University of Illinois, and key leaders in allied health were sent to the minister of public health, to a well-known author and obstetrician in Beijing, to the president of the Academy of Medical Sciences in Beijing, and to the Vice Chief of Rui-Jin Hospital in Shanghai.

We met in Vancouver B.C. the night before departure for China for a briefing on Chinese protocol and an introduction to China's medical developments since the formation of the People's Republic in 1949. The following day we flew to Tokyo for an overnight stop at Narita airport. From there we flew to Beijing, arriving at about 9 p.m. Our Chinese hosts, eager to make us feel welcome, greeted us at our hotel with cake and a Chinese version of ice cream! Throughout the tour of the PRC we were accompanied by a Chinese speaking American guide, 2 national guides and in each city by at least two local guides.

We stayed 5 days in Beijing, from there flying for a 3 day visit to Hefei, a city of about 500,000 opened to western tourists only since 1979. From Hefei we flew to Nanking for 3 days, then to Shanghai for 4 days, traveled by rail to Canton for an overnight stay, and concluded our tour in Hong Kong.

Although two of our prospective hosts had responded to the letters of introduction with invitations to meet with them, we learned that specific appointments had to be made after we arrived in China by the local guides in each city who arranged the itinerary. This produced a high degree of uncertainty and for a time we wondered if our invitations would be honored. The local guides seemed to have a substantial amount of authority, our arrogant Beijing guide only reluctantly arranging a meeting with Dr. Huang Chia-Ssu, president of the Chinese Academy of Medical Sciences, after I had requested the meeting daily, explaining the purpose of our trip each time. However, after Beijing, the two national guides accompanying

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us throughout our stay wrote ahead to local guides in each city and were able to arrange seminars, informal meetings with health personnel, and tours of health facilities that exceeded our expectations.

We spent many hours each day observing different aspects of health care in the cities, the factories, and the communes. Our national guides were tireless in answering questions and on several occasions met with us for evening seminars. Until our fatigue level became too great, we came together each evening as a group to process our observations and share our perceptions.

Formal seminars were arranged with Dr. Huang Chia-Ssu in Beijing, president of the Chinese Academy of Medical Sciences, and with Dr. Tang Cheng-Hua, of Shanghai #6 Hospital, a specialist in the replantation of severed limbs. At Shanghai's Rui-Jin Hospital we spent a morning with three physicians and a nursing administrator. They were Dr. Ssu Chia-Yu, Vice Chief and specialist in internal medicine, Dr. Chang Chuan-Kiun, Chief of Dermatology, Dr. Tsung-Kuang, Vice Chief of Dermatology and Madame Ssu Chia-Yu, Director of the School of Nursing. At Double Bridge Commune near Beijing and at Dong Fang Hong commune near Hefei, we conferred with medical and nursing staffs and visited the commune medical facilities. In Nanking we were taken to the Mei-Shan ironworks factory where we toured the factory, the school, and the hospital, discussing with staff the use of acupuncture to treat medical conditions, the success rate in replantation of severed limbs, and the utilization of health services by factory workers.

Dr. Huang Chia-Ssu met with us at Capitol Hospital in Beijing for a 2 hour overview of China's health care policies and her health care history. Dr. Huang, a cheerful older gentleman with twinkling eyes, a delightful smile, a sharp sense of humor, and perfect command of English, greeted us in what we began to consider the Chinese "uniform"--gray slacks and white short sleeved shirt. Our group had decided before this meeting that all queries would be channeled through me as the leader of our group. Prior to the seminar, we formulated questions, trying to choose those that reflected the common interests of our varied members.

The lack of status differences in China was forcibly brought home as we observed our female guide correct Dr. Huang on a point of history in the middle of a mini-lecture. They engaged, apparently quite amicably, in peer dialogue. I found it difficult to imagine such an exchange between a tour guide from an American travel agency and the president of the American Medical Association.

Among the many topics discussed, Dr. Huang shared some of his concerns about medical preparation as well as information on the origin of barefoot doctor preparation, preparation of nurses, preparation of other allied health workers, and implementation of the four tenets of health policy. The four tenets: serve the people, use mass campaigns, emphasize prevention, and integrate traditional Chinese and Western medicine have served as the framework for China's present health policies.

At Shanghai Hospital #6 we participated in an all-morning seminar on the replantation of severed limbs, interviewed 3 former patients, each of

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whom had successfully had either an arm or a leg replanted, and, when taken on surgical rounds, conferred with a patient who had lost all the fingers of both hands. Two toes had been attached to the stump of his right hand, permitting him to write and grasp and thus to be self-sufficient.

In Shanghai, Dr. Ssu Chia-Yu arranged for us to participate in a 4 hour seminar. Our host, a highly respected internist and fluent linguist, had been selected in 1979 to spend a year at the University of Missouri as an Edgar Snow scholar. The seminar included participation in patient rounds on the medical ward, discussion of the preparation of health personnel, and observation of a minuscectomy in which acupuncture was used to produce anesthesia.

Directed by our host, we donned surgical gowns and boots and witnessed the surgery from an enclosed visitor's gallery. The patient had been given traditional preoperative medication. When she arrived in surgery sedated but awake, 2 acupuncture needles were inserted, one in the thigh and one in the lower lumbar region. The needles were attached by tiny wires to a galvanometer which supplied a minute amount of electrical current to the needles. A carefully gauged quantity of electricity provided stimulation at the site of each needle for about 20 minutes, the induction period, before the initial incision was made. The surgeon tested the anesthetic effect before making the incision by asking the patient if she felt pain when the scalpel was pressed on her skin. When she indicated absence of pain, the operation was begun.

After the wound was closed we were invited to go into the operating theater and talk to the patient. The patient was completely awake, though tired. We noted a bag of cookies and a jar of fruit on the anesthetist's table and were told they were for the patient in case she felt hungry after the operation! According to Dr. Ssu, recent research on acupuncture anesthesia has shown it to be most effective for orthopedic and thyroid surgery. Though used frequently in the People's Republic, general anesthesia is always kept available for emergency use in case the anesthetic effect ceases in mid-operation. While there are obvious patient benefits in using acupuncture anesthesia, such as absence of anesthesia side effects and more rapid recovery, surgeons tend to prefer chemical anesthetics, even in China, because the depth of anesthesia can be controlled more readily.

Our medical hosts were generous with their time and in giving information. They seemed genuinely eager to candidly share both the strengths and shortcomings of their health care system.

Through comments made by our guides we gathered that the Chinese people can choose whether to receive western style or traditional treatment when seen in a health care facility. We were curious about which was preferred, so we decided to conduct a mini-research project using interviews to obtain the information.

Since none of us spoke Chinese, our guides graciously translated the research questions into Chinese characters. Armed with blank sheets of paper, a pencil, a sentence (in Chinese) explaining what we wanted to do,

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and the questions written in Chinese, two of us set out to contact people on the street, on trains, and hotel personnel. The people on the street acted embarrassed and generally refused to respond. The guides suggested that they may have felt they couldn't write well enough to respond. On the other hand, hotel personnel and train travelers were eager to cooperate. In all, 15 people were interviewed. These 15 generally agreed that the choice would be based on the ailment; e.g., if one had a broken leg, a western trained doctor would be chosen. However, for a problem involving an internal organ, such as the stomach, a traditional Chinese doctor would be the physician of choice. The reasoning was that a stomachache would probably require medication; the Chinese herbs used by traditional doctors work more slowly and don't produce so many side effects as the powerful western drugs. Although the interviews could hardly be considered an investigation, they had the delightful effect of bringing us close to people with whom we would probably not have otherwise made contact.

As is customary with all China tours, our itinerary included visits to the great historical sites in each city, to universities, to local schools and kindergartens, and to a variety of industries. While in Beijing we visited the Ming Tombs, the Forbidden City, the Summer Palace, the Great Wall, and attended a lovely ballet, "The Beautiful Lady Who Flew to the Moon."

In Hefei we were guests at a traditional Chinese opera in an auditorium that seated about 2,000 people. In Nanking we visited the ironworks factory, an embroidery factory, and several temples; in Shanghai we observed the great Shanghai harbor, a jade factory, a carpet factory, an ivory factory, and attended an exquisitely lovely operatic concert in the evening.

Hefei, located between Peking and Nanking, had had western visitors for only one year. Selected to become a technological center in China, it boasts a Polytechnic University, an opera, many primitive streetside shops, and a half million gentle, curious people. Wherever we walked, hordes of people soon followed, some of whom pointed at us and giggled. When we asked our guides the meaning of this behavior, we were informed that they were wondering who the strangers were with the white faces and big noses!

As part of the requirements, participants who received course credit wrote a paper analyzing their observations. Three were selected to be included in this monograph. Dr. Ellen Hooker, former assistant professor of health occupations education at the University of Illinois, spent a sabbatical semester in Yugoslavia, studying its health care system and perceptively compares the Chinese and Yugoslavian systems. Dr. Bobby Adams, professor of medical ethics at Southwestern Baptist Seminary in Fort Worth, Texas, analyzes China's health care from an ethical perspective. Miss Ann McElroy, director of physical therapy at Metro Highland View Hospital in Cleveland, Ohio was interested in rehabilitation of the disabled, and made some pointed observations about the care of the physically disabled. Finally, I have attempted to examine the bases for China's success in revolutionizing her health care system and to raise some questions about the future.

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We invite you to reflect with us on these 4 perspectives of health care in the People's Republic of China.

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Division of Health Occupations
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A COMPARISON OF SELECTED ASPECTS OF THE HEALTH CARE SYSTEMS OF THE SOCIALIST FEDERAL REPUBLIC OF YUGOSLAVIA AND THE PEOPLE'S REPUBLIC OF CHINA

Ellen Hooker, Ph.D., R.N.

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Introduction

The health system of the Peoples Republic of China (PRC) resembles in many respects the health system of the Socialist Federal Republic of Yugoslavia (SFRY). It is interesting that these two nations, one in Asia, the other in Europe, have developed parallel health care systems designed to reach the total population and geared to prevention of disease rather than treatment of acute conditions. This paper will address some similarities and differences between the two systems. Areas addressed are: 1. brief descriptions of the two nations; 2. organization of the health services; 3. education of doctors, nurses, and other health professionals; and 4. some personal observations of the two nations.

These comparisons and contrasts are limited by two factors. First, I spent four months in Yugoslavia and only sixteen days in China. Furthermore, I had many opportunities to visit with private citizens in Yugoslavia which permitted me to discuss with them their perceptions of and reactions to the Yugoslavian health service. I also had the advantage of studying the health care system in Yugoslavia as an individual, which allowed me greater freedom to question my hosts. In China, I was a member of a group. The direction of the questioning often prevented obtaining information. For example, none of our group asked the cost for a hospital-day in China.

A second limiting factor concerns the lack of data related to the health care system. Without data related to the medical system that existed in China prior to the establishment of the People's Republic of China, many viable comparisons are impossible. For example, annual data exist for numbers of Yugoslavian health care workers and health care facilities, ratios of physicians to 1000 population and hospital bed per physician, from 1939 to the present. Comparable statistics are not availaibe for the PRC. Consequently, much information related to the Chinese health system is general in nature, verbally presented, and not subject to substantiation. Nevertheless, meaningful as well as interesting comparisons between the health systems of the SFRY and the PRC can be made.

Brief Descriptions of Yugoslavia and China

Brief descriptions of Yugoslavia and China have been included in order to make the comparisons between their health systems more meaningful. Attempts to compare the health systems developed by these Socialist nations following the Second World War are facilitated when information is related to common denominators.

Yugoslavia

Yugoslavia is a relatively small multinational country created after the First World War. It has an area of 98,766 square miles, roughly 2.7% of size of the United States, or not quite as large as the states of Kentucky and Florida combined. The population of Yugoslavia was listed as 22,083,000 (est) by the United Nations in 1979. After World War II, the independent Socialist republics of Bosnia-Herzegovina, Croatia, Macedonia, Montenegro, Serbia, and Slovenia and the two autonomous Socialist provinces of Kosovo and Vojvodina (which are constituent parts of Serbia)

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voluntarily united under principles of mutual solidarity and a determination to construct a socialist society of self-management. The First Constitutional Assembly convened January 31, 1946 to draft the First Constitution of the Socialist Federal Republic of Yugoslavia. Marshal Tito (Josip Broz) was President of the SFRY and President of the League of Communists for life.[2] He died in 1980.

Seventy-five percent of Yugoslavia is mountainous, with sixty-four percent of the population classified as rural.[3] The population is young with the mean age in 1971, 32.2 years and a life expectancy (1972) at birth of 70.2 years. The birth rate has been relatively high following World War II, ranging from 28.4 live births per 1000 in 1948 to 18.2 in 1971. During the same period, the mortality rate dropped from 13.5 to 8.7 per 1000 for a natural rate of increase from 14.6 in 1948 to 9.5 in 1971. Thirty percent of the population ranges from 0 - 18 years of age.[4]

Prior to the Second World War, Yugoslavia was an undeveloped agrarian country. At the end of the war, the nation was devastated. Approximately 1,700,000 persons or eleven percent of the population had been wiped out, twenty-one percent of the houses had been destroyed together with thirty-six percent of the factories, seventy-six percent of rail stock, 28,000 km of roads, etc. Every mine was damaged or destroyed; harbors and airfields were put out of commission. The communication system was wiped out. Hospitals were not exempt from destruction by the fascist occupation forces. Of the 210 hospitals that existed in 1939, 64 (30%) were completely demolished and another 115 (55%) severely damaged. As the Nazis retreated, they not only stripped the medical establishments of all portable equipment, but smashed what had to be left behind including instruments, sanitary facilities and even window glass. Libraries, schools, and universities were special targets for destruction. Physicians, scientists, and faculty were among the first groups killed or imprisoned. The Germans had anticipated that once the leaders were removed, the population would capitulate, which it did not. The inability of the Germans to subjugate the people required them to maintain their armies in Yugoslavia. Instead of supplying their forces with food from Yugoslavia, food had to be diverted to their troops in the country. Partisan groups wrested areas from fascist control throughout the War. This so infuriated German military leaders, that their destruction of the country was ruthless and malicious. For example, prior to its withdrawal from Belgrade, the Germans burned down the College of Philosophy at the University of Belgrade and the thirty institutes of the Colleges of Agriculture and Forestry.[5]

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Yugoslavia has made the shift from an undeveloped agrarian nation to a "mid-developed" (a term I heard used frequently in Yugoslavia) industrialized nation with assistance from the United States and the United Nations, among others. Yugoslavians speak with fondness of General George C. Marshall, who conceived the Marshall plan that was instrumental in Yugoslavia's recovery from the second world war. The development and industrialization of the nation was also assisted by peace. For the first time in over a thousand years, the constituent nations that make up

Yugoslavia experienced a thirty-year period without involvement in war. During a generation of peace, the transformation of the SFRY was so rapid, that the nation changed its status from a recipient of aid to a provider of aid. Because many Yugoslavians recall the conditions that existed when theirs was a backward nation and participated in development of their country, they can empathize with the plight of developing nations. For this reason, many developing Asian and African nations have looked to Yugoslavia for assistance in the development of their agricultural and health care systems. In fact, in 1978 a delegation of Chinese politicians and professional experts were in Yugoslavia when we were, to study the SFRY's self-management system. The United Nations has also enlisted the expertise of Yugoslavians to provide guidance to emerging countries seeking to improve their ability to feed and provide medical care to their inhabitants. When we were in Yugoslavia, the Director of the Institute for Health Education, Dr. Bratislav Tomic, was "on loan" to the World Health Organization (WHO) as Director of the European Bureau of the International Union of Health Education.

Industrialization has presented Yugoslavia with problems. The 1,923,900 passenger cars,[6] the factories, and the petro-chemcial plants have given Belgrade the dubious distinction of being a city with the highest level of air pollution of any city in Europe.[7] Industrialization has also brought inflation. In 1979 the rate of inflation was 27% and it went even higher in 1980. As the standard of living in the SFRY rises, so do the incidence and death rates from hyptertension, strokes, smoking, lung cancer, psychiatric conditions, suicides, and other conditions related to crowding. (Yugoslavia has elected to solve its housing problem by building large apartment house complexes rather than pre-war single family units.)

People's Republic of China

China, by contrast, is the third largest and most populous country in the world. It has an area of 3,691,521 square miles. The country has a land area 2% larger than that of the United States. If Taiwan is included, China is 10% larger than the U.S. In 1978, according to official figures, the population of China was given as 960,000,000. However, an unofficial estimate of China's population is 1,003,900,000.[8] Shanghai, the nation's largest city, was reported to have a population of 11,200,000 or over half as many inhabitants as the total population of the SFRY.[9]

China was engaged in a Civil War from 1946-1949. September 1, 1949 the Chinese People's Political Consultative Conference convened in Beijing to establish a new government. On October 1, 1949 the People's Republic of China was formed with Mao Tse-Tung, Chairman of the Communist Party and Chou En-Lai, Premier and Foreign Minister. Both leaders died in 1976. The PRC consists of 21 provinces (22 if Taiwan is included), the three municipalities of Beijing, Shanghai, and Tientsin, and five autonomous regions.[10]

Eighty percent of the Chinese live in rural areas[11] and ninety percent of the population is located on 1/6 of the land mass. This would be

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analogous to 90-95% of the populations of the United States living in the land area located between the Atlantic Ocean and Pittsburgh, Pennsylvania.[12] In 1971, 339,626,000 of the total population of 859,927,000 was under 15 years of age. From 1949 to 1971, the birth rate dropped from 45.4 to 34.9 per 1000; the death rate dropped from 33.4 to 11.8 per 1000; with the natural rate of increase rising from 12.0 to 23.1.[13] Since 1950, the population of China has increased at a rate of 2% per year.[14] These data allow comparisons to be made with data provided by SFRY. More recent figures provided by PRC indicate that the death rate has decreased to 6.29 per 1000 while the average life span in China has risen to 68.2 years in comparison to 32 years in 1949. This increase in the life span has resulted in an increase in the population of Chinese over the age of 64 from 15,062,000 in 1949 to 43,760,000 (projected) in 1980.[15]

China was also fighting for its independence during the second world war. From 1937-1945 the Chinese fought the Japanese. Destruction of the country was severe and millions lost their lives as the Japanese engaged in a scorched earth policy. The uneasy truce that existed between the Kuomingtang (KMT) or Nationalist Party and the Chinese Communist Party (CCP) during the fighting against Japan, broke down with the defeat of the Japanese. From 1946-1949 the KMT and the CCP engaged in Civil War. The CCP won the war, forcing the KMT to retreat to the island of Taiwan where it has ruled as the Republic of China since 1949. Initially, the PRC allied itself with the Soviet Union and was oriented toward the Soviet form of economic planning. The PRC eventually broke with the Soviet Union. Chairman Mao Tse-Tung's ideology combined Marxism with Chinese nationalism. One of Mao's major departures from Soviet doctrine was his reliance on the peasantry.

Because Mao believed that the development of China was an internal affair, the PRC has been reluctant until recently to borrow money from the West to industrialize, anticipating problems in repaying the loans. Consequently, China has invested its savings (production growth) in industrial development. Agricultural production has grown at a rate of 2-3% per annum. Since the population has also grown about 2% per year, the country has not made much headway. Agricultural production has been accomplished with minimum mechanization. One great accomplishment of the Chinese has been to distribute food so that the differences that existed between the rich and the poor have been eradicated. While none live opulently, none starve.

Industrial production grew at a rate of about 10% per annum. Again, the Chinese are reluctant to mechanize too highly because of limited opportunities to absorb labor in the cities. At this time, 75% of the people produce 33% of the national product while 25% of the people produce 67% of the national product.[16]

Although the PRC has become more industrialized, the government has controlled production of consumer goods. As a result, there are only approximately 50,000 passenger cars in the PRC (in comparison with 1,923,900 in SFRY) but there are 77 million bicycles, or approximately one bicycle for every 12 Chinese.[17] In addition to bicycles, increased production of TV's, radios, sewing machines, etc. have resulted in an increased

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standard of living, although food, clothing, and housing have remained relatively unchanged over the years.

As in Yugoslavia, air pollution is a problem. Not only did we see smog in the cities, but we saw DDT sprayed on trees in Shanghai without concern for either the crews doing the spraying or the crowds in the streets who suffered the fallout. We also observed the manufacture of carpets and artifacts made of ivory and jade without any protective practices to limit inhalation of dust by the workers. On the other hand, it was interesting to see street sweepers wearing masks to protect them from inhalation of dust.

In contrast to the inflation that has paralled industrialization in the SFRY, the value of Renminbi (RMB) has remained fairly constant through government control of prices. In 1955, the People's Bank of China exchanged the old RMB with new bank-notes at a rate of 10,000:1. Since then the purchasing power of the RMB has remained stable. For example, in 1955 yuan 0.368 bought one kg of wheat flour. Today yuan 0.37 buys one kg of wheat flour.[18]

Organization of Health Services

Yugoslavia

The health system of Yugoslavia is a tiered system. Services are provided at the commune, municipality, region, republic or province, and federal levels. The basic unit of the socio-political structure is the commune. Communes combine into inter-communal associations or regions to provide services which for practical or economic reasons cannot be so well or easily provided by individual communes. The Socialist Republic of Serbia is divided into nine regions and one hundred thirteen communes. The basic commune organizes health services to provide:

1. Public health services to insure safe drinking water; sanitation; food handling; and prevention and treatment of communicable diseases.
2. Emergency medical aid.
3. Pre- and post-natal care; care during childbirth for mothers; and pre- and post-natal care of infants.
4. Medical supervision for infants, preschoolers, school children, youth and workers.
5. General medical aid.
6. Dental care.
7. Health education.
8. Medical supplies for prevention and treatment of illness and disease.
9. Professional confirmation and diagnosis of death and post-mortem examination.[19]

The basic communes determine priorities for health servces and programs as well as the type of health institution to provide. The communes also secure the monies to implement programs and plans. The law requires involvement of consumers in the determination of health care services and the scope of benefits provided by law to all citizens. Because the SFRY

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leaves it up to the republics and provinces to interpret and carry out provisions of the National Health Service, and because the law mandates minimal coverage, there is no uniform system of health care in SFRY. Different regions have different health insurance funds covering different benefits, differing networks of health care institutions, and differing ratios of general practitioners, specialists, and other medical workers to the populations they serve. Consequently, in order to secure the compulsory level of care, more affluent communities or republics provide financial support for those that are less affluent. The principle of solidarity is operative. The Socialist Autonomous Province of Kosovo and some poorer communities, for example, receive funds from municipalities, regions, or republics as well as from the Federation. There are separate systems for out-patient and hospital care.

There is a compulsory system of health insurance in the SFRY, financed by contributions from workers; taxes levied on the gross income of work associations; and monies provided by the republics and provinces. Prior to 1979, a double system of health insurance existed. Agricultural workers and the self-employed (lawyers, artists, clergymen, craftsmen, actors, singers, shopkeepers, etc.) received fewer services than their counterparts in work organizations and paid more for them. Since 1979, all workers, those in work organizations, those in agriculture, and the self-employed, pay the same rates for the same services. Coverage for agricultural and self-employed workers is arranged contractually. The exact rate varies from year to year and from region to region. Because Yugoslavians pay for compulsory health insurance, they do not pay for medical treatment. Between 6.2% and 6.8% of the gross national product goes to pay for health care.[20]

The health system is socialized. All health institutions including pharmacies and pharmaceutical companies became socially owned in 1948. All health care workers are employees of the state. The private practice of medicine, dentistry, and pharmacy was abolished by law in 1961. Health care personnel are salaried workers of the hospitals, polyclinics, health centers, etc. that employ them. These institutions develop one- and five-year plans and submit them to communities specifying services to be provided and the rate of payment. Providers and consumers negotiate terms until consensus is reached.

The dom zdravlja. While the basic unit of the socio-political structure is the commune, the basic unit of the health service is the dom zdravlja or house of health. By 1980 every commune will be served by a dom zdravlja (DZ). The DZ concept was the brainchild of Dr. Andrija Stampar, who in 1937 had evolved the concept of social medicine, or the discipline that studies the relationship between health and the cultures (social systems) and social events that shape them. He established an experimental DZ in Slavonia, Croatia before the Second World War. Physicians were employed by the state to deliver primary care. After the war, Dr. Stampar helped write the constitution of the World Health Organization (WHO) and was the president of the first assembly of the WHO.[21]

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Doms Zdravlja in large communes have ambulances and health stations as satellite centers scattered throughout their areas to better serve the population. Ambulances are the smallest health center units. They are stationary health facilities staffed by nurses and possibly nurse midwives which are visited by physicians on a regular basis. Ambulances must be provided by law to serve 2000 or more inhabitants located from 5 km on poor roads or 10 km on goods roads from a health center. Health stations are small clinics staffed by nurses, general practitioners, specialists (obstetrics-gynecology, pediatrics, etc.), dentists, pharmacists, and laboratory technicians.

I visited the VI Dom Zdravlja serving the commune Vozdovac in Belgrade on October 4, 1978. On April 6, 1944, even before the end of the War, decisions were made to establish a DZ in the commune. The commune was then served by an ambulance. The DZ serves a population of 180,000 in an area of 14,936 hectares. The area served is primarily agricultural (86%) with 24% in the city or in eight small villages in the immediate environs. The staff numbers over 600, including 220 physicians, 300 nurses and other health workers trained at the secondary medical school level, with the remainder office staff and unskilled workers. The DZ Vozdovac would be somewhat analogous to a scaled down version of the Carle Clinic Association, Urbana, Illinois, with respect to the services provided. The VI Dom Zdravlja has 17 ambulances and health stations with four more health stations planned. There is no hospital within the commune so clients requiring hospitalization are referred to appropriate medical centers or hospitals in the region. Treatment may also be recommended in one of the hundreds of state owned spas or health resorts.[22]

A Yugoslavian with a health problem consults a general practitioner at an ambulance, health station, or DZ. After an examination, which may include lab and x-ray studies, the individual may be treated and released or referred to a specialist for further examinations and treatments. If hospitalization or surgery is recommended, the client will be admitted to an appropriate hospital or medical center. A separate staff of physicians cares for hospitalized patients. Physicians at out-patient facilities do not have hospital privileges.

Once released from the hospital, the patient is sent back to the general practitioner (GP) for follow-up care. A written report summarizing diagnoses, examinations, treatment and recommendations is sent to the GP. The patient may also receive a copy of the report. Prescribed medications are obtained from pharmacies at little or no cost. If rest and relaxation are recommended, Yugoslavians are entitled to care and treatment at any of the spas or rest resorts, all expenses paid, including travel.[23] Patient records are kept at the out-patient health facility. When residents move, they take their health records to the health facility in the new commune. Every Yugoslavian is issued a small, green, passport-sized health record book. The book is presented when health services are sought and appropriate entries made. The health records for a lifetime are recorded in the green books.

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China

The PRC also has a tiered system of health servies. The lowest level of health care is provided by health workers at the production team or urban residential unit. Health stations serve production brigades and urban neighborhoods. The third tier, is the commune or urban-district level. Health departments as well as hospitals and clinics serve the population at this level. At the county or municipal level, the fourth tier, health departments, hospitals, and medical schools are provided. Finally, at the provincial or large-city level, health departments, hospitals, and medical colleges are provided. The Ministry of Health at the Central Level directs the medical system with the local health departments responsible for supervision of medical personnel and facilities at their respective levels. The most advanced medical care and training are provided at provincial hospitals and medical colleges although general hospitals at the county/municipal level provide the greatest volume of hospital care and the medical schools, while less advanced, train large numbers of auxilliary medical personnel. There is at least one general hospital in each of the 2,000 or so counties. The system of commune and district hospitals has yet to be developed, with commune hospitals in some areas serving as little more than out-patient clinics.[24] All of the 55,000 people's communes have clinics and almost all 600,000 production brigades have medical stations. Clinics and medical stations are collectively owned. The two commune hospitals we visited did offer in-patient services as well as surgery, and the Mei-Shan Iron Works Factory Hospital was fairly large offering a wide range of services including sophisticated surgery for replantation of limbs and digits.

The PRC has neither a national health insurance system nor a national health service. In this respect, it is more similar to the U.S. than to the SFRY. Health care is financed collectively. That is, as public funds are accumulated through collective labor, the living standard and with it the health care conditions improve. In this respect, China resembles the SFRY. China has three separate types of health insurance programs for industrial workers, government workers and agricultural workers, with provisions as follows:

1. Industrial workers: free medical treatment with the exception of hospital meals and expensive medications; pays 50% of cost of dependents' health care.
2. Government employees: free medical treatment except for hospital meals and expensive medicines, no coverage for dependents.
3. Agricultural workers: program of self-insurance developed by each of the 50,000+ agricultural cooperatives. Poor communes offer minimal benefits and may not cover dependents; 10% of workers are not covered.

Decisions made by the central government have determined the health care system in the PRC. Because the People's Government elected to concentrate its resources to develop heavy industry, limited funds were available to develop the health care system. The central government also

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elected to promote a medical system that would provide all people with relatively inexpensive, technologically simple, and out-patient oriented health care. In many respects this parallels the early phases of the health system in Yugoslavia. SFRY mandates minimal health benefits by law, but permits each work association to negotiate with health care providers for extended benefits. In the SFRY hospitals are state owned, whereas in the PRC the hospitals are independently owned by the communes, provinces, and local governments.[25] The SFRY, however, does cover all segments of the population while in the PRC, many children, 10% of the agricultural workers, and some retirees are without medical coverage. Furthermore, SFRY has advanced from the old system of covering agricultural, industrial, and self-employed persons under separate health insurance programs to uniform health insurance coverage for all segments of the population. Another point of contrast relates to the control of the health system. In the SFRY, control moves from the commune level up to the federal level, whereas in the PRC the control is vested at the central level and moves down to the commune level.

We were not shown anything comparable to the Yugoslavian dom zdravlja. Nevertheless, the emphasis on out-patient care, the provision of health care through agricultural communes, and the reliance on barefoot doctors to provide primary care does serve many of the same goals. As in Yugoslavia, if the health problem cannot be handled by the barefoot doctor, the patient is referred to an appropriate health care facility for specialized care. The PRC has not developed a system of state owned spas or health resorts, as an adjunct to the health services. It is not likely that it ever will. One concept that exists in the PRC but not in the SFRY, is the blending of western medicine with Chinese traditional medicine. Patients may choose either mode of diagnosis/treatment.

Although the PRC decided to provide basic health care to the Chinese people rather than pattern the health care system after that of the Western nations, there are indications that this may change in the future. Public Health Minister Qian Xinzhong stated that China faces the problems of renovating and modernizing equipment and upgrading the vocational level and skills of medical personnel. Forty percent of the health workers "...have not had a sound professional training; their basic knowledge in this field is very poor."[26] Scientific research is increasing. For example, at Huanshan Hospital, Shanghai, new research institutes for dermatology and neurology, and research departments of microsurgery, theoretical foundation of Chinese medicine, and four other specialties are being developed. Research efforts are affected by contacts with professionals from other countries. Foreign contacts have also resulted in importation and modernization of medical and scientific equipment.[27]

Education of Doctors, Nurses, and Other Health Professionals

Decisions a nation makes related to the services included in its health care systems determine the types and numbers of practitioners trained.

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This in turn has an impact on the educational programs designed to prepare health care workers; that is, whether health care personnel will be trained on the job, educated in secondary schools, or sent to universities for professional training. Yugoslavia and China has provided differently for the preparation of health care workers.

Yugoslavia

Yugoslavia patterned the preparation of health workers to a large extent along Western lines. Reliance on doctors and nurses to provide health care has resulted in the establishment of new colleges of medicine, dentistry, and pharmacy and higher medical schools, which educate nurses, radiologic technicians, physical therapist, medical technologists, and sanitation technicians.

Education of health professionals. Before the Second World War, there were three medical colleges, one college of pharmacy, and no dental colleges. The three medical colleges had an enrollment of 1814 students. There were five 3-year programs for nurses in secondary medical schools. By 1973, there were over 19,000 professional students enrolled in eleven medical colleges, three colleges of pharmacy, and two colleges of dentistry. In addition, there were more than 34,000 students enrolled in 83 four-year secondary medical schools and four two-year programs in higher medical schools. (Higher medical schools are somewhat similar to community colleges in the United States). Between 1945 and 1973, Yugoslavia had graduated 39,592 physicians, 8,607 dentists, and 8,898 pharmacists from its professional colleges.[28] They have done such a good job, there is a surplus of professionals in the health fields, especially dentists. Many dentists have emigrated from Yugoslavia in order to practice dentistry.

Professional education for physicians, dentists, and pharmacists is via the "narrow door."[29] While there are many candidates, only a few can be selected. Candidates for the three professional schools take examinations over their general knowledge of chemistry, physics, and biology. Medicine is the most popular career with law second and economics third, and only the very top students are selected.[30] Five percent of the entering classes in medical colleges are foreign students admitted without taking the entrance examinations and without regard to their academic records. Medical education is free. In fact, tuition is free at all levels of education in Yugoslavia. Living expenses may also be subsidized. Programs are six years long with five years of didactic preparation and one year of clinical experience.

Theoretically, each student has equal opportunity to progress through elementary and high schools and to be accepted into her/his chosen college in a university. In practice, however, children who grow up in urban families, particularly cultured families, have a competitive advantage because they are less likely to work in the fields or the home than rural children; have more pressure from parents to seek a university education; have more books available at home and hear their parents converse with professionals. Therefore, many students select another route to medical school. They attend secondary medical school. Upon completion of the

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two-year program, graduates of the secondary medical schools apply for admission to medical college and have priority over students from other secondary school curricula. Even doctors' children elect this route. Those students not accepted may work as nurses or laboratory technicians.[31]

Upon graduation from medical college, young physicians work as general practitioners. Many have to take jobs in rural areas, due to the scarcity of openings in cities. Doctors apply for jobs at hospitals or other health care facilities. All jobs must be openly advertised. Appropriate candidates are interviewed by a committee and the best qualified individuals are offered positions.

It would seem that all young doctors in Yugoslavia aspire to become specialists. Specialists make more money, are better respected, and have more leisure time than GP's. The numbers of physicians admitted to each of the thirty-one specialty areas are regulated with the final decision made by the Secretary of Public Health at the province or republic level. Physicians who have practiced general medicine for the prescribed number of years (the minimum is two years), apply to a hospital, DZ, or medical center for permission to take training as specialists. Applications are screened. Doctors may be accepted for their preferred specialty areas, other specialty areas, or turned down. The names of those accepted are sent to the Secretary of Public Health for final approval. His/her permission is required before an applicant may specialize in one of the branches of medicine or surgery. Permission usually is granted although the Secretary did refuse to approve training in a specialty area in the Socialist Republic of Serbia (SRS). The moratorium lasted for two years. Doctors who have had their applications for a specialty area turned down a number of times, may eventually ask to specialize in one of the less popular branches of medicine or surgery in order to escape from general practice in the hinterlands. Fifty percent of all physicians are specialists.[32]

Education of nurses and allied health professionals. Nurses and other allied practitioners take their training at higher medical schools. When I was in Yugoslavia, there were four higher medical schools, located in Belgrade, Ljubljana, Zagreb, and Sarajevo. The plan was to have a higher medical school in each of the six republics and the two autonomous provinces. The SRS also has twenty-six basic (secondary medical schools) schools of nursing. In the SFRY there are approximately eighty basic nursing schools. The nursing programs were in a state of transition in 1978, due to the changes in the general education system. Since the Second World War, nursing schools have been a part of the educational system. The pattern of eight years of preliminary (primary and junior high equivalent) education followed by tracking at age 15 is being changed. No longer will students going to universities attend gymnasia while those destined for practical training attend special schools. Under the new educational program, students will receive eight years of preliminary education, followed by two years of general education, and finally two years of training at specialized high schools. Education in the specialized schools will prepare graduates for employment or to continue their

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education after graduation. In 1978, the new program had been implemented at the level of the first year of the basic school. Students planning to become nurses or allied health professionals attend secondary medical schools. The basic nursing course prepares graduates to work at the nurse assistant level. Further educational training at a higher medical school is required in order to become a nurse, physical therapist, radiologic technician, medical technologist, or sanitation technician.

It requires two years to complete the nursing program at the higher medical school. By statute, students must have 450 hours of theory and 450 hours of clinical experience. The program includes general nursing, pediatrics, gynecology, obstetrics, public health, and psychiatry. The Higher Medical School in Belgrade had a full-time staff of ten professors, 30-35 nurses and physiotherapists, as well as part-time visiting professors who sit on faculties of medicine and dentistry. There were 180 full-time students and 400 part-time students. Although approximately 10% of the students who complete the nursing program in the secondary school are males, when they enroll at the Higher Medical School most of them shift to the other three programs; physiotherapy, radiologic technology, and sanitarians. The faculty at the Higher Medical School stated the males made these shifts because they did not want to work evenings or nights.

There are no baccalaureate level nursing programs in Yugoslavia. While nursing faculty are required to have university degrees, they cannot get this preparation in nursing. Of necessity, they take degrees in psychology, philosophy, biology, etc. Director Vec and Assistant Director Djuranovic are working to develop a College of Nursing at the University of Belgrade.

After graduation from the nursing program, graduates apply for employment. They practice nursing under supervision. After a year or two of supervised employment, graduates sit for a state examination for nurses. Those who pass may practice nursing without supervision. There is a shortage of nurses in Yugoslavia which will be more acute when new medical facilities are completed over the next few years.[33]

Health visitors. An innovative health worker, the health visitor has been developed in the SFRY. Health visitors are nurses who have taken two additional years of training to prepare for their roles as health educators and community organizers. They live and work in their geographically assigned districts. As health educators, they work with families in such areas as maternal and child health, nutrition, family planning, etc. They do not provide nursing care. As community organizers, they work with neighborhood associations to achieve community involvement and participation in identifying and solving health problems. Health visitors are on the staff of DZ's, ambulances, and health stations. Health visitors have their own departments in DZ's and the supervisor has equal status with other department heads. This concept of nurses as educators and facilitators is unique. Health visitors function as liaisons between different areas of the health system and the client communities. In 1978, there were, for example, 1000 health visitors in SRS, one for every 5000 Serbians. Serbia hopes to have one health visitor for every 2000 villagers

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or 3000 urban dwellers at the end of the planning period, 1985. Health visitors are vital to the primary health and preventive medicine goals which form the backbone of the Yugoslavian health care system.

China

China, on the other hand, selected a different method to provide health workers. The Central Government elected to provide basic medical services to the masses of Chinese in cities, rural areas, and the military. Therefore, large numbers of semi-skilled health workers had to be prepared as rapidly as possible to reach the millions in need of this basic health care. The PRC opted to prepare barefoot doctors on the job. This emphasis is revealed in the numbers of health workers trained in the last thirty years. There were 2,642,000 doctors, pharmacists, nurses, and other technicians in 1980. Of this number, 1,108,000 were qualified at the intermediate level with 436,000 qualified at the top level. Medical colleges have graduated 388,000 doctors, almost 41 times as many as graduated between 1928 and 1948. Another 800,000 have been graduated from middle schools of medicine, 19 times as many as those prepared between 1928 and 1948. By the end of 1980, in contrast, 1,575,000 peasants (one-third of whom were women) had been trained as barefoot doctors. An additional 2,819,000 peasants were trained as health workers, and 709,000 as midwives.[34] These data reveal that twice as many peasants had been trained on the job as barefoot doctors, health workers, and midwives as doctors, pharmacists, nurses, and other technicians had been educated by medical colleges and middle schools of medicine. These data also indicate the emphasis on providing health care to rural areas. Seventy percent of state funds appropriated for medical and health purposes are allocated to the rural areas.[35] This figure is not excessive considering eighty percent of the population is rural. The majority of graduating doctors are assigned to work in rural areas, and thousands of mobile health teams are sent annually to the rural areas from the cities to function in treatment and prevention programs.

Education of health professionals. In contrast to Yugoslavia, where students can enter medical college after graduating from secondary school, in China, graduates of senior middle school are expected to engage in productive labor for a minimum of two years before sitting for university entrance exams.[36] During the productive working period, young Chinese study for the "bar exam" or examinations for admission to a university. The examination has a possible 550 points with a score of 300 required for admission to the curriculum of choice. Only 4.5% of those who take the exam pass. In many instances, individuals must have the permission of their production teams/production brigades before they can apply for admission to a university for professional education. There are 116 medical colleges in China. Of these, 24 are colleges of traditional Chinese medicine. With the exception of Capital College, Beijing, medical school is a five-year program at this time. During the Cultural Revolution, medical training was reduced to three years. Capital College Medical School has an eight-year program, the longest in China. Students at Capital College

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take two years of premedical training in Beijing University. Medical programs include didactic and practical education. About half of the medical students are women. Medicine is the preferred profession for women. Males prefer engineering. Medical schools may include the curriculum for dentistry. Although medical schools take some of the same courses, the curricula are separate. Upon graduation, young doctors are assigned to work in a hospital or research institute.[37]

Presumably, medical college graduates would also be selected to train as specialists, although we never probed this area during any of our interviews with medical personnel. However, doctors at the Dong Fang Hong Commune Hospital volunteered some information relative to specialization. They stated that "doctor" was a general term and included physicians and surgeons trained in both traditional Chinese and Western medicine. Physicians and surgeons took the same course in medical school and after graduation trained for their specialties in practice.[38]

Education of nurses and allied health professionals. The education of nurses is a "complicated story" according to Madame Ssu, Director of the Rui-Jin Hospital School of Nursing.[39] She stated that the "pendulum swings." Nursing education has undergone shifts in emphasis. Prior to the Cultural Revolution, nurses took three years of training. This was shortened to two years during the Cultural Revolution. The curriculum has been increased again to three years. Nursing education is, therefore, in a state of transition as the shift is made from two-year to three-year programs. The first year of nurses' training provides students with basic courses in nursing and pre-clinical medical sciences. During the second year, nursing students take clinical nursing courses and rotate through the clinical services in the hospital. The final year, student nurses work on the clinical units (wards) as practicing nurses.

As in Yugoslavia, few males go into nursing. Those who do, generally specialize in psychiatric nursing, or orthopedics and genito-urinary nursing. This information was elicited when Madame Ssu was asked whether there were male nurses at Rui-Jin Hospital. She replied that there were few male nurses because there was no psychiatric service. She volunteered the information concerning male nurses entering the other specialty areas.

Those students who successfully pass their nursing school examinations are awarded certificates of completion. There is no system of nurse licensure in the PRC. Graduates are assigned nursing positions. The best students are selected to become the future teachers. After graduation, they receive several years of practical experience. Those who continue to perform at the highest levels of proficiency are "invited back" to become teachers. The top nurses are selected to attend advanced schools, such as the Shanghai Advanced College of Nursing, to pursue a two-year course. When we asked students at Beijing Teachers' University how nurse educators were prepared, we were told that nurses were trained at "special schools."[40] Medical college teachers are "trained" by medical colleges. Some hospital doctors also teach in medical colleges.

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Middle grade or adjunct medical schools. Our hosts at Rui-Jin Hospital, Shanghai, reported another level of education that prepares nurses and allied health professionals, the middle grade or adjunct medical school. Programs at this level are initially three years long, followed by practical experience. These schools prepare nurses, medical technicians, physical therapy technicians, etc. These practitioners are technicians (middle grade) who, when qualified, are promoted to the technologist (high grade) level. The doctors stated that criteria would be established in the future to determine when technicians should be promoted to technologists.[41] Dr. Huang stated that there are different grades of medical training. Doctors trained for three years at secondary medical schools can work in county and commune hospitals.[42] This information explains the separation of medical personnel into graduates of medical colleges and graduates of middle schools of medicine.[43] The Rui-Jin doctors pointed out that three-year doctors were not the same as middle-grade medical personnel. Three-year doctors received their education during the Cultural Revolution. They are now sent back to medical school for an additional year to increase their background in the sciences.

Training of health professionals in rural areas as opposed to urban areas. We asked the six doctors on the staff of the Dong Fang Hong Commune Hospital how much training they had received. We were told that one had completed a five-year program, two had completed three-year programs, and three had been trained on-the-job as barefoot doctors. Since there were two assistant doctors on the staff, we also asked about their training, and were told they had attended secondary medical schools, 'so we call them assistant doctors because they had not "qualified" as doctors yet.' We learned, in response to questions about training radiologists and laboratory technicians, that radiologists studied for three years in medical schools (presumably middle medical schools). "Radiologists" are not doctors but are trained at the technician level. Dr. Huang, when asked if there were categories of health workers other than doctors and nurses, said some hospitals had physiotherapists. He added that physiotherapists had not received regular training, "they are nurses, just nurses" taught by doctors to function as physiotherapists. In the Commune Hospital, laboratory technicians are trained on-the-job. The best barefoot doctors are selected for laboratory training. Nurses are trained for three years in hospital schools after graduating from junior middle school (age 15) or senior middle school (age 18). Due to their early admission to nursing schools, the young women training to be nurses must not be required to work for two years before entering nursing programs.[44]

Staff at the Double Bridge Commune Hospital stated that barefoot doctors were for the most part trained on the job at the production brigade level. Pharmacists at the Hospital also learned on the job. Our informant, Dr. Win Tu Wan, had practiced medicine for thirty years. Dr. Win had received three years of training in the Liberation Army and although "Western trained," had also studied traditional Chinese medicine for an additional six months.

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A house was pointed out to us as we drove through a commune village. A number of wheelchairs of assorted styles were parked outside the house. We were told that the woman who lived in the house had received on-the-job training, treating the handicapped.[45]

In contrast, the physiotherapy department at the Mei-Shan Iron Factory Hospital was relatively sophisticated. There were several rooms where acupuncture, moxibustion, ultrasound, diathermy, massage, passive and active exercises, etc. were practiced. However, a question directed at discovering how many of the doctors were trained in physiotherapy produced laughter. Physical therapy is done by doctors, not nurses, at this 300-bed hospital which has 120 doctors and 140 nurses on staff. The Orthopedic Department specializes in reconstructive surgery and replantation of severed limbs and digits. Most injuries are sustained at work or in traffic accidents. Nurses have been sent to university hospitals to receive from six to twelve months of specialized training in treatment of burns, orthopedics, etc.[46]

It would appear that the level of sophistication of medical treatment, professional education, and health care, in general varies in rural commune and factory hospitals according to finances and needs. Health workers trained on the job work as barefoot doctors, pharmacists, and technicians, in laboratories, x-ray or physiotherapy departments in poorer communes or where the small numbers of patients warrant less training. On the other hand, wealthier communes and factories where large numbers of injuries require highly specialized services have personnel trained at universities, nursing schools or middle medical colleges. At the Mei Shan Iron Factory Hospital, physicians perform physiotherapy rather than a woman trained on the job, as was the case at the Double Bridge Commune village.

Barefoot doctors. Yugoslavia developed a unique health practitioner, the health visitor. The PRC has developed its unique member of the medical team, the barefoot doctor. The role of the barefoot doctor is very different from that of the health visitor, although both function as health educators and community organizers, and although both function in the area of primary care. The barefoot doctor has a dual role as a worker in a production brigade and as a health care worker. Furthermore, the barefoot doctor functions somewhat like the medical corpsman in the United States armed services. The Chinese equate them to paramedics.[47] Chang describes the barefoot doctor as a new socialist concept which developed concurrently with "co-operative medicine."[48] In fact, barefoot doctors probably originated in the Chinese military. Dr. Norman Bethune had Chinese "doctors" on the field staff of the 8th Route Army, Chin-Cha-Chi Military District in 1939. Allen and Gordon recount the story of Fong, Surgeon at No Chien Tsun casualty station. Bethune chastised Fong for improperly treating a soldier with a compound fracture of the leg. He later learned that Fong was self-taught.

> Was it possible? In an unknown village a buffalo tender had caught a breath of the world outside his village. He had been swept up by an army that fought at the front and taught in the rear. By an act of sheer self-discipline he had made himself a

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surgeon, because war meant wounds, and healed soldiers meant victorious resistance, and in resistance Fong the illiterate became Fong dai fu, the doctor, the eminent one, the master of life and learning.[49]

Even before Bethune became aware of Fong's history, he had developed the concept of training medical orderlies on the job to perform at higher levels. He told his Chinese medical orderlies:

...At first you will need instruction and you will need supervision. So you will need leaders. But you must not get into the habit of being supervised constantly. This is only temporary while you are learning. You must finally be able to supervise your own work. So you orderlies - go to your leaders, the chief orderly, the doctors, and the nurses and say to them, "What will I do next? Tell me what to do. Am I doing this correctly?" When you have finished the work you have been given to do, go to him again and say, "Give me more work." And after a while, he will get very tired of your insistence, and to get rid of you, he'll make you a nurse. And, when you're a nurse, go to the doctor of your team, to your leader, and say, "Show me how to do this. Am I doing this correctly? Is there a better way to do it? What is the reason for this way? Give me more work to do." Then, he in his turn will get very tired of you and your insistence, indeed, and to get rid of you, he'll make you a doctor like himself. And when you're a doctor, go in the same way making a great nuisance of yourself, creating a big disturbance with your activities, go around eagerly looking for work. Do the work of two or three other doctors, be constantly studying how to improve your technique, be constantly thinking of the comfort and well-being of your patients...[50]

Dr. Huang told us that the first health policy after the revolution was based upon four principles: 1) To serve the workers, peasants, and soldiers; 2) Prevention first; 3) Union of Western and traditional Chinese medicine; and 4) Integration of health work with mass movement.

When Chairman Mao Tse-Tung called upon health workers to serve people in rural areas, there were approximately 90,000 barefoot doctors in 1965.[51] Many mobile health teams served the countryside. Now, cooperative rural health care exists and barefoot doctors are the backbone of the system. There are 1,600,000 barefoot doctors. Dr. Huang thought the "emphasis was quite right, to focus on rural health." Barefoot doctors treat the common diseases occurring locally, give inoculations, and distribute preventive drugs. They mainly engage in preventive work, while health workers who receive two to three weeks of training perform first aid and some preventive work, at the production team level. Barefoot doctors function at the production brigade level, with two or three non-salaried barefoot doctors per brigade. A few brigades may have as many as four or five barefoot doctors. Barefoot doctors are ordinary peasants selected by their production brigades to receive training on the basis of their attitude. Selection criteria include unselfishness, putting the interest of the collective ahead of personal interests, boldness of action, and

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demonstrated ability to work hard. "They were peasants, they remained peasants, and they'll remain peasants all their lives."[52] The initial training of barefoot doctors is four to six months and is followed by continuing education experiences. Physicians at the Double Bridge Commune Hospital informed us that barefoot doctors received training in the winter when the patient census was down and when their services were not required in the fields. The level of training barefoot doctors receive can be inferred from A Barefoot Doctors' Manual.[53] The contents include sections on anatomy and physiology, hygiene, diagnostic techniques, therapeutic techniques, birth control, and common Chinese medical herbs. The section on anatomy and physiology has subsections related to children and traditional Chinese medicine.

Observations

At the present time, the health system of Yugoslavia appears to be more highly developed than that of China, if Western medicine is used as the measuring rod. Both nations have had about the same period of time within which to develop their systems. However, the PRC sustained a ten-year setback during the Cultural Revolution, from which it only began to recover a few years ago. The Western measuring rod may be appropriately applied to Yugoslavia, a European nation but it may not be appropriate for China, an Asian nation with its history of traditional medicine dating back thousands of years. Nevertheless, comparisons require the use of common denominators. These denominators may not reveal the whole picture, especially when the goals of the nations being compared are different, and if the methods employed to meet these goals are also different. At the risk of being simplistic, I would like to make some personal observations based upon what I have seen, what I have learned from conversations with Yugoslavians and Chinese, and from what I have read.

Political Influence

Although both nations were faced with the task of providing a health system where none had previously existed, they elected to go about it differently. Political decisions determined how SFRY and PRC developed their health care systems and will influence their future progress. Furthermore, political decisions determined many other aspects of the social and economic systems of both countries which are either directly or indirectly related to the health care system. For example, the reliance on automobiles in SFRY has resulted in sacrificing trees to increase the numbers of lanes of traffic and to create parking in the cities. Yugoslavians stated that automobiles were "eating the trees." The reliance on bicycles in PRC has been one factor contributing to tree planting. In the Nanking area, 33 million trees have been planted, 100,000 of them on the main streets.[54] Cars increase environmental pollution in cities, bicycles do not.

Political decisions have influenced housing, industrialization, military, public health thrusts, and health care emphases. The SFRY has elected to solve housing shortages by building huge apartment complexes, "human incubators." Yugoslavians can move from place to place at will to seek employment. Housing construction cannot keep pace with movement from

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rural to urban areas. While the PRC has built apartments in the cities, we saw many single family units being constructed in city and countryside alike. The Chinese are less able to move from one area to another because they are assigned jobs by the government. The government has an established policy of moving citizens from urban to rural area.

Industrialization has proceeded differently in both countries. Neither nation was industrialized at the end of the Second World War. Because Yugoslavia was not industrialized, there was no established pattern of confrontation between workers and owners of industry. Therefore, as industrialization was accomplished, the central socialist government at the federal level was able to direct its development. A model self-management system evolved which has caused SFRY to be selected by the International Labor Organization (ILO) and other world organizations to provide assistance and expertise to developing nations, including China. The PRC, on the other hand, involved segments of its population in industrialization in unique ways through "cottage" or back yard industry as a component of its industrialization process. This decision had certain consequences, among which were accidents and injuries.

Yugoslavia has compulsory military service. All males must serve time in the military. Males have some control over when they will serve. Those attending universities may defer service until after graduation. University graduates serve one and a half years while non-graduates serve two years. Every male has reserve status until age 55 years. Yugoslavians accept the situation without apparent resentment. It is a duty. China has a voluntary military system. It is an honor and a privilege to serve in any of the Chinese military branches. Each nation has a separate system of military medical care. In Yugoslavia, civilians may request admission to military hospitals. These rquests will be granted if beds are available. Whether to have compulsory conscription or voluntary enlistment were political decisions. These decisions have had an impact upon all systems, not the health system alone.

Public health thrusts have also been politically determined. Each nation has eradicated many of the common communicable diseases such as typhoid, malaria, diphtheria, measles, and so forth. China has all but wiped out schistosomiasis. China has also virtually eradicated veneral diseases (VD). The manner in which they manage the people made this possible. The Yugoslavian methods of dealing with the population are different and they have not been as successful with their VD programs. Both countries have a high level of respiratory diseases. Yugoslavia has been less successful in stamping out tuberculosis (TB) than it had hoped. The SFRY might have a greater degree of success in reducing the incidence of TB and other respiratory diseases if it developed antispitting campaigns. Yugoslavians spit almost whenever and wherever they please. Perhaps China could lower its rate of respiratory diseases by enforcing its antispitting regulations. We were told they existed. The only evidence to curb spitting we observed in our travel in PRC was in Shanghai. Spittoons were conveniently located on the streets. No concerted efforts to prohibit spitting were noted in the other cities we visited. In fact, we saw sputum on hospital and university floors and stairways.

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Political decisions affect antismoking campaigns, birth control programs, the determination to eschew nursing home/extended care facilities, immunizing children at school without requiring parental consent, and what emphasis to place on preventive vs. curative health care. Yugoslavia and China both claim to emphasize the preventive and health maintenance aspects of medical care. The manner in which they practice industrial medicine is different, however. The SFRY appears to focus more on the prevention of industrial diseases and health related conditions. At the Institute of Industrial Medicine in SRS, not only were victims of work related conditions and accidents treated, but research was conducted into methods of preventing such problems as cataracts, lung disease, and radiation disease to mention only three. Research findings resulted in changes in working conditions and the use of protective equipment. In contrast, the workers in some factories we visited in Shanghai worked without protective equipment and under conditions we predicted would cause future sight, hearing, and lung conditions. Most of the workers in these factories were young. On the other hand, the medical system in China has been extremely successful in treating certain industrial accidents, for example, the treatment of burns and replantation of severed digits or limbs.

The rationale for these differences is rooted in politics. The Yugoslavian workers are perceived to have the right to safe working conditions. Safety precautions change as medical knowledge and industrial technology change. In China, allocating medical resources to treat workers who are victims of industrial accidents springs from a different political ideology. Dr. Ssu stated that it was a good education for workers to realize that the government placed so much emphasis on saving the life and productivity of a single worker. He added, "this is symbolic."[55] The political thought reflected here is the importance of the workers' productivity, not the rights of workers. Healing workers of industrial accidents, or traffic accidents, returns them to a productive role in Chinese society.

Political decisions in the areas of housing, the military, industrialization, public health and health care are intertwined. Decisions to spend or not to spend money in one sector have their impact on the other sectors. In some instances, the political decisions made in the last thirty to thirty-five years were determined by the history of each nation. Yugoslavia has been subject to invading armies for centuries. Sometimes the movement was from west to east, as with the Crusaders. At other times the surge was from east to west, as with the Turks. The history of Yugoslavia is replete with examples of resistance to the imposition of authority by a few over the masses. China was isolated from the Western world until quite recently. As a people the masses appeared more resigned to domination by a few. Western ideas are scrutinized carefully by Chinese before they are accepted or blended with their traditional ideas. This melding process has been occurring in Yugoslavia for hundreds of generations. Therefore, the nations have developed different medical systems even though their political systems are very similar. A factor which may result in even more

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marked differences between the health care systems of Yugoslavia and China is called the phenomenon of the "second generation" by Yugoslavians.

The Second Generation

The Yugoslavians refer to the generation that built the nation following the Second World War as the first generation. This was the generation that pulled itself, and the nation, up by the bootstraps. This was the generation that made the tools to build the nation. This was the generation whose guiding principle was solidarity. The second generation, now entrusted with moving the nation forward to attain its goals, is the first generation to live in a Yugoslavia at peace. It is the first generation in history never to have experienced war. Many of the second generation continue the dedication of the first generation and operate by the principle of solidarity. Many do not. Many of the young Yugoslavians, like young Americans, place self-interest above the interests of the nation. They feel they are entitled to employment and aspire to positions that will not require hard work. Education is free at all levels, therefore many university students take six or even eight years to complete a four-year university program, thus delaying entry into the work force. The rate of absenteeism has risen as work conditions and health benefits have improved. Some administrators with whom I talked attributed absenteeism to work avoidance.

China shows evidence of the phenomenon of the second generation. Conversations with students at the two univerities we visited revealed frustration and even impatience with the practice of assigning students to curricula not of their choosing and assigning graduates to jobs which determine how they will live for the rest of their lives.

Joshua Horn described his experience in the '50's with a mobile medical team assigned to build a medical school and hospital in a remote area in China. The team, a cross-section of the staff taken from the parent hospital, dug clay, molded and fired bricks (after building the kiln and cutting the wood to stoke it), laid the bricks, cut timber for the windows and doors, etc. Only then, did the team select students with whom they lived as they trained them.[56] This was the first generation. This experience of Horn's was similar to one recounted by Misovic.[57] He described volunteerng his service when he was a university student, to help build the hotel Yugoslavia in New Belgrade.

Donation of service continues in both nations. Dr. Ssu, Rui-Jin Hospital, Shanghai, stated that all members of the hospital staff once a week help to clean the hospital. Professional and non-professional workers in Yugoslavia work as a team several weekends each year and contribute their earnings to those who have suffered misfortunes, such as victims of earthquakes.[58] Such service, however, is often expected of workers and may not spring from altruistic moves, much as American workers are asked to contribute their fair share to the United Fund Drive. It will be interesting to see what impact the second generation will have on the political systems and hence the health care systems in Yugoslavia and China.

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Conclusion

I have had the opportunity to study aspects of the health care systems in the SFRY and the PRC. The two nations are quite different with respect to location, size, composition of the population, historical background, and outlook. Nevertheless, each nation has rapidly developed a health care system geared to provide basic medical and social services to the masses. Some aspects of these systems are similar, such as the emphasis on preventive rather than curative medicine. Some aspects are different, such as the development of the concepts doms zdravlja and health visitors in Yugoslavia and the barefoot doctor concept developed by China.

The relationship between political decisions made by the governments of the SFRY and the PRC and the development of the health care systems was explored. The concept of second generations in Yugoslavia and China was discussed, and the impact of the health care system was raised.

Although many visitors to the SFRY and the PRC might regard the health care systems as inadequate and backward in comparison with the health care system in the United States, the Yugoslavians and Chinese have been able to accomplish what we have not, providing basic medical care at little or no cost to virtually all of their citizens. They have done this in Spartan settings with old and often outdated equipment. While they look to Western medicine for more advanced scientific, technological and managerial methods, we would do well to borrow concepts from them to adapt to our system in order to provide basic health care to millions of Americans who remain unserved or underserved by American medicine.

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ETHICS AND HEALTH CARE IN THE PEOPLE'S REPUBLIC OF CHINA

Bobby E. Adams

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Introduction

The territory now known as the People's Republic of China has one of the richest cultures and longest historical heritages in the world.[1] Outside influences have been many and varied.[2] The Christian religion, in its various forms, has intermittently had some influence in China. One of its strongest influences had to do with the importation into China of Western medical concepts and practices, when China already had a long and complicated health care tradition quite different from its Western counterpart.[3] With the formation of the People's Republic of China in 1950, after decades of internal strife and war with foreign foes, a high agenda item was the kind and extent of health care system to be elaborated.[4] Today, both traditional Chinese medical concepts and practices have come to stand along side Western medicine, although integration of the two seems exceedingly difficult, if not impossible.[5]

A good bit of literature written from North American viewpoints has accumulated about the health care delivery system in the People's Republic of China.[6] Several difficulties present themselves in this literature. One concern is the availability of reliable statistics.[7] In the absence of statistics, either the accumulation of data or impressionism seem to be the alternatives which lead to constructive analysis. Visitors to the People's Republic are obviously not able to gather sufficient data to furnish reliable statistics, therefore impressions usually form the bulk of the literature.

One problem with impressions is that the one who records them rarely spells out the criteria which determined the choice for recording the impressions, given the unusual and unique impressions one receives when observing a foreign culture for the first time; consequently culture shock may distort impressions.[8] Culture shock itself is an obvious difficulty encountered in the literature. This difficulty is aggravated more when one observes a phenomenon, and the conceptual framework of the observer is radically different from the conceptual framework of the persons directly involved in the phenomenon which is being observed. The conceptual framework of traditional Chinese medicine and that of Western medicine are cases in point.

Added to these difficulties is that of ideological differences (political-economic ideologies) and the tremendous loyalties already generated among observers from the United States and those being generated in the People's Republic of China. Each group tends to compare its best ideological (and medical) theory with the other's worst practice.

Conceptual Framework

These difficulties probably can never be completely resolved. Being acutely aware of them while working within the framework of comparative studies is in itself an enlightening experience. Observing a group of North American health care professionals as they experienced China and its

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health care system helped me to be aware of conceptual frameworks at work in both the North Americans and the Chinese. I had already formulated questions that were previously directed to the health care system in the United States and were now directed to the system in China. Doing this increased my awareness of cultural and conceptual bias in the questions themselves, and afforded a lesson in humanity. It simply is not possible, to paraphrase Herbert Braun's questions, "Ist moglich eine vorverstandnisloss theologie?," to form a presuppositionless set of questions.

The questions with which I previously approached the health care system in the United States were derived from Brody,[9] and are as follows:

1. How is health defined?
2. What is the scope of health planning and health care delivery?
3. Who has access to health care?
4. How is payment made for health care and its delivery system?

It seems to me that the foregoing questions are applicable to any health care system, and the answers to them help delineate the broad working outline of that system.

Within a given health care system, certain questions in ethics arise. How they are understood and answered depend on the answers given to the four preceding questions. These internal ethical questions which the U.S. health care system has generated are as follows, again following Brody:

1. What is the nature of the doctor-patient relationship?
2. What meaning does the phrase, "voluntary consent" have?
3. Who determines the meaning of the concepts, "quality of life" or "sanctity of life"?
4. Who determines the right to participate in the decision-making process?
5. What kinds of behavioral control are sanctioned?
6. What sorts of controls or reproduction are sanctioned?
7. What kinds of human experimentation are done?
8. How are scarce resources allocated?
9. What is being done in the field of genetic engineering?
10. What sorts of mass screening programs are in use?
11. How do organized medicine and medical economics relate to one another?

It is obvious that the foregoing set of questions address themselves to the health care system in the United States, and they were, in one form or another, present in the minds of the fourteen people who visited the People's Republic of China under the auspices of the University of Illinois.[10] How well they coincided with the concerns of the Chinese health care people with whom they came in contact is one of the themes of this study.

The broadest framework for the study has to do with the basic ethical structure of current Chinese society. The questions derive from the field of ethics, and the answers to the questions flow from both writings of others and impressions gained during my first hand observations.

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Chinese society seems to be, in its ethical framework, both teleological and deontological. That is to say, its teleology is directed at once, from the past prior to 1950, in an attempt to completely eradicate the "bitter past," and toward the future, in helping the nation catch up with and surpass, if not the rest of the world, at least a large part of the West.[11] All of life, either on the individual, familial or community level, seems to be directed toward this goal. At the same time, the overriding teleology is undergirded with a deontology of a contractual nature. Previous Chinese culture was strongly family oriented, with family meaning the extended family. It seemed to me that this extended family concept has now been broadened to include the nation, in some mystical yet practical sense.[12] The entire ethical framework of Chinese society contains this blending of teleogy, the goal of the China of the future, with a certain kind of contractual deontology, the duties of one toward the extended family. China's health care delivery system must be understood within this framework.

Observational Analysis

With this basic conceptual framework in mind, the puzzles that China's health care system present begin to make some sense. Procedurally, I shall follow the questions already presented, and attempt to answer them briefly.

1. How is health defined? It seems to me that "health" in present Chinese society means the physical, mental, emotional and social ability to contribute to the China of tomorrow. Anything which hinders the individual or group from exercising this ability to the fullest is considered disease or ill health, and is to be treated. Amazing surgical procedures are devised to enable workers with severe physical injuries to return to a productive life.[13] "Re-education" of those whose abilities are impaired mentally, emotionally or socially is undertaken with the same goal in mind.[14] Any concept of health beyond this one is either rejected or projected to some future when the China of tomorrow may need it, and can afford it.[15] This concept, unspoken, not specifically spelled out, yet ubiquitous in its influence undergirds the entire health care delivery system.[16] It is in itself seemingly an outgrowth of Chinese experience between 1910 and 1950, and is an integral part of Chinese society, not likely to be greatly changed in the foreseeable future.[17]

2. What is the scope of health planning and health care delivery? If the definition of health itself seems narrow to the Western mind and experience, it must be noted that the definition serves as a goal in China, a goal yet to be fully implemented among millions of people who lack seemingly rudimentary health care. Health planning takes place from both the bottom up and from the top down. Dating from 1950, Chairman Mao set out the health policy to be followed in the new China. It consisted of four principles, as follows:

1. Peasants, workers and soldiers would be the primary recipients of the health care delivery system.
2. Prevention (of disease?) was to receive first priority.

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3. There would be a union of doctors of traditional and Western medicine.
4. Health work was to be integrated with the mass movement. This included the extermination of flies, mosquitos, bedbugs and rats.[18]

These four principles continue to serve as guides at least until mid-1980. They have been sufficiently flexible to serve during several changes in methodology and strategy in Chinese top leadership.[19] Organizationally, the principles work as follows, beginning in a rural area:

On the most basic level, a production team (which comprises a village of 100-300 people) is served by one health care worker.

On the second level, a production brigade (comprised of some 10-25 production teams) is served by a cooperative health station and one or more barefoot doctors (health care personnel trained in traditional Chinese medicine).

On a third level there is a commune hospital, with 10-30 beds (the expenses of which are borne by the central government).

On a fourth level is the country hosptial, with 100-300 beds.

On a fifth level is the provincial hospital, located in the provincial capital.

Staff is provided for this system and for urban and rural areas by 116 medical colleges, 24 of which train in traditional Chinese medicine and 92 in Western medicine. Nurses are given 2-3 years of training beyond middle school. There is at present no university-related nurse training program. Medical schools train dentists, whose primary work is preventive. There is a professional organization, the Chinese Medical Association, for physicians. At present, more women than men are entering medicine.[20] How decisions were made as to the number of people admitted to professional health care training was never made clear.

Although Sidel gives slightly different details for health care in an urban setting, the basic structure seems the same, whether the setting is an urban, rural, or industrial neighborhood.[21] It is obvious from this description that no person is far removed physically from basic medical help, and that a patient can theoretically be cared for on the level required without great difficulty.

One conclusion to be reached in connection with health planning and delivery is that the theoretical structure is very evident and shows detailed planning. It is not as evident to an outsider as to how the decision making process works in planning, nor indeed just who the decision makers are.

3. Who has access to health care? On the surface, it seems that every individual has access to health care.[22] Since great stress is placed on preventive medicine, it is to be expected that emphasis is given to children.[23] Observation of the kindergartens we visited substantiated our expectations, as did our visits to industrial settings, rural communes

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and urban neighborhood. However, before any definitive answer could be given to the question, one would have to know a great deal of detail about Chinese society. Perhaps Western skepticism is too evident, but it seems likely that any society, regardless of how egalitarian in conception, eventually will produce a group of forgotten, powerless, ignored people. The real test of access in a health care system would come when these people desire health care. Since theoretically such a group does not exist in the new China, the question is rendered moot, until such time as contradictory evidence comes to light.

4. How is payment made for health care and its delivery system? This question evoked, for me, the most contradictory kinds of evidence. Most of the western literature I surveyed either did not raise the question or assumed a Marxist kind of answer which would seem to be, "From each according to his ability, to each according to his need," which in itself is a misreading of Marxist theory.[24]

Evidence seems clear that fee-for-service medical care with the fee paid to the health care worker does not exist in modern-day China's health care system.[25] Yet even here questions arose, which I will bring up later. Again, it seems that training for health care personnel is borne by society in general, on some level which was never clear, from the Central Government in Beijing, to the Provincial or Municipal Government level, or perhaps even on a commune level. At least the individual who receives the training does not directly pay for it.[26]

Health care personnel receive salaries from some level of government.[27] Although some questioning was made as to whether a commune, factory or neighborhood directly supported the health care personnel through salary, and the answers seemed to be in the negative, clear answers were never forthcoming. Perhaps the questions were not clear and direct enough.

Facilities and supplies do seem to be paid for by either the central, provincial, municipal or autonomous government agencies.[28] Just how the figure for the amount of money to be allocated was derived was never made clear.[29] Again, it may be that differing conceptual frameworks on the part of interviewers and interviewees made the situation more ambiguous than would have obtained if both shared the same framework.

In summary, the conclusion I have reached is that health care personnel do not personally pay either for the cost of their training or for their own living expenses while in training. They do not charge patients and personally receive from them fees for services rendered. Supplies and facilities seem to be paid for, generally, from either community or government funds.[30]. However, in some cases at least, individuals or families pay into a general health care fund which in turn helps to support the health care system which serves them.[31] The basic document of the People's Republic of China, the Constitution, states that its citizens have a right to "material assistance in old age, and in case of illness or disability." While this statement could be interpreted to mean the right of access to health care, and would not address the problem of payment, the statement following explains that the state increasingly will expand public

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health services.[32] In actuality, the mechanisms for payment of health care vary widely from environment to environment,[33] as also do the levels of health care made available to differing populations.[34] It seems to be the case that, given a determined population, the same level of health care is accessible to all within that group, and payment is the same for all members of that population.[35]

Analysis of Problem Areas

Brody lists eleven problem areas which have been generated within the health care system(s) in the United States.[36] At considerable risk of imposing a paradigm where it does not fit, I shall apply Brody's schema to what seems to be the case in China. The superposition itself should be instructive for cross-cultural study purposes. Then, I shall attempt to list questions which to Chinese health care personnel seemed important. Increasingly I became aware of the disparity between what the North American health care personnel deemed to be of pressing importance and what the Chinese health care personnel considered to be relevant or important.[37] Although basically these disparities involve conceptual frameworks and differing concepts of what a just society is like, how such a society functions, and the manner of securing a just society, they also involve what each group perceived to be pressing health care problems within his/her own society, which phenomena may not be perceived as problems by members of the other society.

As I follow Brody's listing of eleven problem areas,[38] I shall briefly elucidate both the options that seem to be available in our society and those which seem to be followed in the health care system in China. Then I shall attempt to evaluate the extent to which each area is perceived to be a problem in China. It may be that in some cases, that which is seen to be an option in North American society is not perceived as such in China, and it also may be that there exist options from a Chinese point of view which are either not available in North American society or are not deemed to be desirable options.

1. Brody envisions the options in doctor-patient model relationships in North American society to be three, at bottom mutually exclusive although in practice often mixed: the model of doctor as priest who informs the patient (supplicant) both the nature of his illness (sin, wrong-doing) and the remedy (expiation), together with the consequences of not following his, the doctor (priest's) advice; the model of doctor as engineer who determines from the patient (client) what his problems and desires are, and then both doctor (engineer) and patient (client) set about solving the problem/satisfying the desire (although Brody uses as example a civil engineer or architect, it seems to me to be at least equally applicable to use the concept of social engineering); and the model of a contract between two equals who set about to solve (if possible) the problems of the patient's illness. Brody opts for the third model, although he admits that patient as well as doctor helps to set up the model to be followed.

It seems to me that given the basic Marxist (or to use Chinese phraseology Marxist-Leninist-Maotsetung[39]) ideology, a fusion of the three models

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has taken place, and functions in the following manner: All problems arise ultimately out of wrong economic relationships, and such wrong relationships are conceived of in Marxist thought much as sin is defined in most Christian theology. Health problems are so conceived, and as such the priest-supplicant model is used. To the extent that the doctor actually does know more than the patient about how to solve the problem, the engineering model is used (however, this model ultimately contradicts Marxist-Leninist-Maotsetung ideology). In the final, pragmatic situation, doctor and patient contract on a solution. The final goal of the contract is that of enabling the patient to return to his basic role in the workplace, and any and all means may be used to foster this end.[40] To return to the weakness of the engineering model: it seemed to me that, according to current Chinese thought the patient should become as well-informed as the doctor about his particular case so that he (the patient-client-worker) takes charge of his getting well and restoring himself to full productive capacity. Thus, although during the early phases of treatment the doctor may be perceived as engineer and the patient as client, this model finally must be discarded according to Marxist-Leninist-Maotsetung thought. The discrepancies between Brody's options and what seem to be considered as options in Chinese thought reside in the area of Brody's conceptualizing of doctor-patient relationships as between more-or-less autonomous individuals while in Chinese thought it is the community (in this case, China itself as family-community) which determines ultimate goals and basic relationships and neither doctor nor patient are understood as autonomous entities.

2. The problem of (adequately) informed (voluntary) consent which is so currently a problem in North American medical ethics, does not have such force in China, primarily due to the conceptual framework to which I have just alluded: basic concern is to restore the patient (worker) to full productive capacity, and is already (at least in theory) granted in all cases. Whatever steps are necessary to obtain this result have already been assented to by all in the society, and thus the idea of the necessity to obtain a particular individual's (the patient's) consent is non-occurring.[41]

3. Curious things happen to Brody's reflection of North American conflict over "quality of life" as over against "sanctity of life" concepts. Chinese thought seems to opt for "quality of life," and in ways North Americans find difficult to conceptualize or accept. Given the overriding concern for the China of tomorrow, the birth of babies who probably could not be productive workers is frowned upon and the abortion of fetuses with such prognoses is the accepted practice.[42] Bottom-line justification for such abortions is utilitarian in the extreme. Yet high expenses seem willingly borne to restore an injured or ill worker to full productive capacity. Even though this goal could not be met, no efforts were spared to show society in general that all attempts had been made to reach such a goal, although prognosis was negative.[43] It seems therefore that two criteria are used which logically seem contradictory to North Americans: that of "quality of life" applies to fetuses, while that of "sanctity of life" (working productive life) applies to those who are already members of

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society.[44] The problem which looms on the horizon in North America concerning euthanasia in the case of old age and/or terminal illness seems not to be conceived as a problem in China, possibly because of traditional Chinese valuing of the elderly.[45] What will happen is not clear as the "wisdom" which accrues to the elderly no longer seems to be wisdom in an increasingly technological society.

4. Brody's fourth internal problem area for the U.S. concerns determining the right to participate in the decision-making process. How the question is answered in the North American context is closely related to the problematics of question one concerning the doctor-patient relationship. The same seems true in China. On a theoretical and ideological level all of society is involved in every decision; thus all can participate in the decision-making process. This is certainly seen to be the case in such areas as immunization of children, behavior control, and control of reproduction, as will be seen, and also seems to be the case in private or personal medical or surgical problems.[46] The dictum might be stated that to the extent one (this includes society) is to be affected by the results of a decision, one should have the right to participate in the decision-making process.

5. In discussing behavior control, Brody lists three methods of such control through the use of 1) chemical means, 2) psycho-surgery, and 3) persuasion. In this area, discussion in China quickly centered on number three, persuasion. To the Westerner, this quickly translates to "brainwashing" and all the supposed horrors that the phrase conjures up.[47] The Chinese do not hesitate to speak of persuasion as re-education and to speak of it in the most positive terms. Again, given the overall teleology present in Chinese society, and the widespread seeming acceptance of the rules which, if followed, will lead to the China of tomorrow, such "persuasion" would indeed be hard to fault from within the conceptual framework in which it has been generated. Controlling behavior by means of chemical substances or through psychosurgery were not talked about in any conversation, such refusal being justified on pragmatic grounds: why talk about an unnecessary means if other and more economical means work better? I felt more uneasiness, both on my part and on the part of some Chinese, in this area than in any other.

6. There seemed to be total consensus about the goal of zero population growth, and strong social controls seemingly are taken for granted in helping to reach the goal. One must remember that in traditional, pre-1950 Chinese society, large families were seen to be highly desirable, primarily as the means of achieving security for parents in their old age. Now the norm is a maximum of two children for each married couple, with economic and social rewards for those who have two children, greater rewards for those who have one child, and even greater rewards for those who have no children at all. At the same time, increasingly severe social and economic negative sanctions are applied against those couples who have three or more children.[48] Startling as it was to Westerners, control of reproduction was understood and accepted by the Chinese we interviewed as not only the decision of the couple involved, but legitimately also the

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concern of neighbors and the work group. All such matters are not regulated so much by law as by social pressure, with shame and good reputation being means used for control.[49]

7. The form in which Brody casts the issue of human experimentation is altered considerably from within Chinese perspective. A phrase which recurred was clinical experimentation, with perhaps very little animal experimentation being done prior to work on humans. We were informed that volunteers are used first, then patients are asked to cooperate for therapeutic reasons.[50] The case of experimentation when cure or amelioration for the patient were not in view was not successfully raised.[51] Again, it seemed to me that this was a non-issue for the Chinese, the reason being that all persons were assumed to accept the general teleology for China which has already been cited. If therapy for people in the future can be the result of experimentation on a given human subject, although there is little or no hope of therapeutic intervention for the present subject, then the experimentation is considered to be justified.[52] What Westerners assume to be the rights of the individual are not understood to be at issue in such cases to the Chinese.

8. The question of allocation of scarce resources is also seen in different ways by North Americans and Chinese. Many times we heard that China is at present a poor country which must use all its resources to build for the future.[53] Medical resources are to be allocated according to the same goal. At times, how all resources are allocated was explained in some detail.[54] Such explanations always involved the local level. When questions were asked about how the mechanism of scarce resource allocation is done on the county, municipal or provincial, or national level, answers were vague but never was any overt dissatisfaction expressed about actual allocations. Whether or not both material and human resources were to be expended abundantly on individual cases evidently was a decision that health care personnel made, and the criteria seemed to be whether or not intervention might result in both returning a worker to productivity and/or the example such intervention might set for fellow workers along with the subsidiary but real consideration of the value of such intervention as "clinical research."

9. The question of genetic engineering, euthenics and eugenics, was not a subject discussable with the Chinese. Nor is it touched upon, to my knowledge, in the literature. However, it is my opinion that if it were understood to be an economically sound use of resources to work in the area, there could be no theoretical objection to such engineering programs.

10. Mass screening programs for problems, such as Taylor-Sachs, Down syndrome, or sickle-cell disease common in North America, were not in evidence in China. Whatever screening programs were necessary for the control and eradication of problems like schistosomiasis and venereal disease evidently were accepted enthusiastically by society as being part of working toward the China of tomorrow. My observation was that the widespread acceptance and success of such programs were looked at with a good deal of doubt on the part of North Americans. Skepticism seemed to

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relate to the willingness of human beings to cooperate in ventures that might be either economically costly to the individuals involved (in the case of rice growing and schistosomiasis), or willingness to proscribe physical pleasures (in the case of venereal disease). Such skepticism on the part of North Americans seems to me to have been historically based on a theological understanding of the sinfulness of mankind (with sin understood as selfishness), the theological understanding which has long since been secularized. The Chinese view, on the other hand, is based on the Marxist view of the malleability and tractability of human nature which can change and inevitably will change when the economic bases of living are changed. To say that the North Americans are basically pessimistic about human nature, while the Chinese are optimistic, is a gross oversimplification, yet true to a limited extent.

11. Brody's question about the relationships between organized medicine and medical economics is quite valid in its North American context, but takes on an entirely different cast in a Chinese environment. In the Chinese environment, health care systems operated for profit seemingly do not exist. Yet problems about medical economics evidently do exist, since all resources, human and material, are assumed to be scarce and therefore must be allocated. Since all the economy is supposed to be planned, the crucial questions involve issues such as who the planners are, what happens when proposed plans conflict, how are plans revised when unforeseen contingencies develop, and who coordinates the various plans? Changing relationships within the system do not, evidently, eliminate the real need for ongoing planning within the relationships established.

Conclusion

Transferring our attention from Brody's schema as applied to China's health care system to the Chinese system and tensions that arise specifically within it, it seems to me that the most pressing problem area in the Chinese health care sytem concerns the relationship between traditional Chinese medicine with its conceptual framework and practices and Western medicine and its conceptual framework and practices. On a very pragmatic basis, training is being given in each and both are practiced simultaneously. The most obvious point of contention, and one that has been popularized, concerns traditional Chinese medicine practice of acupuncture. The practice of acupuncture has spread to the West, and is pragmatically used. However, it is based on a theory of the human being which prevails in the West and which forms the basis for Western medicine. It seems doubtful to me that acupuncture can continue to be used by a Western trained medical person without either somehow being incorporated into the Western concept of the human being or somehow profoundly altering the Western concept itself. Acupuncture is symptomatic of a very real and profound clash between two views of the human being. To a lesser extent, herbal medicines and their use reflect the same clash.

Another future tension and one probably not to rise up for some time, concerns what will happen when the goals of Chinese Marxism-

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Leninism-Maotsetung thought are either reached or are continually frustrated. In other words, what will happen as China catches up to the rest of the world, that world conceived of presently in China as either socialistic-imperialism (Russia and her allies) or imperialism (the capitalist countries)? What will "catching up" mean in terms of such ills as pollution, ecological imbalances and the malaise that seems to affect those whose material wants can be satisfied.[56] All these phenomena have a bearing, direct or indirect, on health and its definition, and the health care system generated by the accepted definition of health and disease.[57]

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[4]Wen, A General Survey, pp. 190-200.

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[7]This concern is reflected in Joyceen S. Boyle "Nursing Care in the People's Republic of China: A Preliminary Study," in Madeleine Leininger (ed.), Transcultural Nursing Care: Teaching, Practice and Research. Proceedings of the Fifth National Transcultural Nursing Conference (Salt Lake City: University of Utah College of Nursing, 1980), pp. 91-99; and in Victor W. Sidel and Ruth Sidel, "Self-Reliance and the Collective Good: Medicine in China," in Robert M. Veatch and Roy Branson (eds.), Ethics and Health Policy (Cambridge, MA: Ballinger Publishing Company, 1976), pp. 57-75.

[8]Two excellent practical treatments of culture shock from particular theological perspectives are Charles H. Kraft, Christianity in Culture: A Study in Dynamic Biblical Theologizing in Cross-Cultural Perspective (Maryknoll, New York: Orbis Books, 1979), and Marvin K. Mayers, Christianity Confronts Culture (Grand Rapids: Zondervan, 1974). Both depended heavily on H. Richard Niebuhr's classic. Christ and Culture (New York: Harper and Row, 1951), particularly chapter one.

[9]Howard Brody, Ethical Decisions in Medicine (Boston: Little, Brown and Company, 1976).

[10]University of Illinois/Urbana Educational Travel Tour to the People's Republic of China, June 21-July 11, 1980: "Comparative Health Systems: China - U.S."

[11]For example, see Mao Tsetung, Talk at an Enlarged Working Conference Convened by the Central Committee of the Communist Party of China (Peking: Foreign Languges Press, 1978), especially pages 18-27. The talk was delivered, on January 30, 1962. See also the preamble to The Constitution of the People's Republic of China (Adopted on March 5, 1978, by the Fifth National People's Congress of the People's Republic of China at its First Session), (Peking: Foreign Languages Press, 1978), pages 3-5.

[12]See Article 4 of the Constitution of the People's Republic of China, pages 9-10, for a statement of this extended family concept. See also Ye Jianying, Speech at the Meeting in Celebration of the 30th Anniversary of the Founding of the People's Republic of China, September 29, 1979 (Beijing: Foreign Languages Press, 1979), pages 48-49.

[13]Medicine in China, pp. 1-9; Creating a New Chinese Medicine and Pharmacology, pp. 21-42. On July 7, the University of Illinois group met with a Chinese Orthopedics team at the Number 6 Hospital in Shanghai. This hospital has seven research units working on re-implantation of severed limbs. We were presented the histories of nine cases of successful re-implantations of arms severed at the wrist, above the wrist, at the shoulder, fingers severed, feet severed at the ankle. In two cases of carcinoma of the upper arm, the entire arm was removed, then the lower arm was reimplanted, leaving a functioning hand on a shortened arm. In the cases of loss of thumb, the second toe from the foot was implanted.

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On four finger loss cases where re-implantation of the fingers was impossible (explosion or crushing), toes replaced forefingers. Muscles have been successfully grafted from other parts of the body in hands and fingers. In interviews with two patients, it became obvious to the group that the ultimate goal was to restore the worker to full (or nearly full) productive capacity.

[14]A brochure entitled, Chinese Academy of Medical Sciences, with no bibliographical data, does not list any mental health care facilities or training. The University of Illinois group was told that there is one mental health unit in China. It seemed that, following Marxist-Leninist-Maotsetung thought, mental and emotional problems are attributed to imbalanced economic (work) relationships, and if this relationship is balanced, the mental or emotional problem would disappear. For example, see the article, "Como una alumna se libra de la angustia," in Beijing Informa, 18 junio 1980, pp. 21-25. A news article in Beijing Review, June 23, 1980, pages 24-25, states that there were at the time of reporting 328 doctors who specialize in mental diseases (104 "highly qualified," the rest "medics"), 822 nurses in the area and 5,838 hospital beds in Shanghai, or three psychiatrists and 50 hospital beds for every 100,000 inhabitants of the city. The ten outlying counties under the political jurisdiction of the Shanghai municipality have set up "mental homes," each with about 100 hospital beds. In all the municipality, care for mental patients begins in neighborhood organizations, and every effort is made to enable the patient to do some type of labour. There were at the time of writing some 105 such neighborhood organizations caring for nearly 2,300 patients. In addition to the neighborhood organizations there are some 350 nursing groups in Shanghai, composed of family members, neighbors and retired workers. It is the task of these groups to see that the patients take their medication, to observe the patients and to make reports to the medical workers. These nursing groups care for some 5,000 patients. More than 10,000 people cooperate in these nursing groups without remuneration. In addition, neighborhood hospitals in Shanghai treat mental patients on an out patient basis. In the article, the only mental disorder mentioned by name was schizophrenia.

[15]Creating a New Chinese Medicine and Pharmacology, pp. 18-20; "Surgery in China Today and Tomorrow," in Medicine in China, pp. 1-4. See also an interesting interview with the (then) Minister of Public Health, Qian Xinzhong in Beijing Review, June 23, 1980, pp. 17-20.

[16]In the interview cited in note 15, Minister Qian reiterated the oft-repeated dictum of the Party Central Committee and Chairman Mao that (medical) modernization should be geared to the needs of "the workers, peasants and soldiers who form the main body of the working people." (p. 18).

[17]Mao Tse-Tung's, "Talk at an Enlarged Working Conference," pp. 20-21. He envisioned the building of socialism as being a task of perhaps 300 years, although it might be accomplished within 100. See also the Constitution, Chapter Three, Article 50.

[18]Dr. Huang Chia-Ssu, then President of the Chinese Academy of Medical Sciences, in an interview with the Universty of Illinois group, on June 28, 1980, dwelled on the four principles and stressed their continuing validity.

[19]The four principles were enunciated by Mao Tse-Tung in 1950, and have been followed since. See Ye Jianying's speech.

[20]From the June 28, 1980, interview iwth Dr. Huang Chia-Ssu. See note 18.

[21]Sidels', "Self Reliance and the Collective Good," pp. 59-66. See also Qi Wen, China: A General Survey, pp. 190-191, and Beijing Review, June 23, 1980, pp. 20, 15-27.

[22]The Constitution seems to guarantee this access to "working people," "disabled revolutionary army men and the families of revolutionary martyrs." See Chapter Three, Article 50. What would happen to such citizens who are not "working people" is not clear.

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[23]On June 1, 1980, the Secretariat of the Central Committee of the Chinese Communist party, proclaimed the 1980's to be a decade dedicated to children and youth. See Beijing Informa, 18 junio 1980, pp. 15-17.

[24]Under beginning socialism, as evidently China considers itself to be, the slogan is, "From each according to his ability, to each according to his contribution." It is only later, under communism, that, "From each according to his ability, to each according to his need," can and will apply. See Chapter One, Article Ten of the Constitutions.

[25]Yet fees are paid by health care recipients. In an article on health care in Shanghai, the question of fees for services is raised, as to whether such fees are high. The article looks forward to a continuing reduction of such fees, as paid by recipients, but does not, evidently, contemplate their abolition at any time in the future. See Beijing Review, June 23, 1980, p. 24. See also Robert J. Blendon, Can China's Health Care Be Transplanted Without China's Economic Policies?," in the New England Journal of Medicine, Volume 300, number 26 (June 28, 1979), pages 1453-1458, particularly page 1458.

[26]The Sidels state that, "There are no tuition fees, and students are paid a modest stipend (19.50 yuan a month in Beijing for living expenses; the amount is sufficient for only a most modest standard of living. There is no charge for books, medical care, or transportation to hospitals or to the countryside. Some entertainment is provided free at the college," in Serve the People, page 120. None of the Chinese literature which I reviewed brought up the subject.

[27]See Blendon's article, page 1457.

[28]Ibid., 1454.

[29]Blendon, p. 1455, states that these decisions are made at the highest level of government in Beijing. However, interviews with commune directors and directors of industries held with the University of Illinois group seemed to suggest that considerable input through various levels up to the highest took place before decisions were made in Beijing.

[30]For example, in the "Double Bridge People's Commune" near Beijing, the current annual plan calls for forty percent of the year's gross production to go to prepare for the following year, from thirteen to thirty percent for mechanization, two percent goes for "agricultural tax" (to the Central Government?), and three percent for the welfare of the people. The rest, from twenty-five to forty percent, is divided among the people. I assume that the three percent for the welfare of the people is destined for, among other things, health care. In addition, each person pays five yuan a year for medical care on the production team level. This sum helped pay for or paid for care by "barefoot doctors" and their clinics. If every commune resident were assessed the five yuan, this would give a total annual budget of some 210,000 yuan for health care on the "barefoot doctor" level. This information was shared by the chairman of the commune in an interview on June 28, 1980. On the other hand, at the "East is Red People's Commune" near Hefei, the University of Illinois group was informed that each commune member received free medical care. In this case, I assume "free" to mean that the commune member does not pay personally, but the mechanism for providing health care services was never explained, although direct questions were asked. The interview was held on July 1, 1980. The above two examples illustrate the complexity of the system (or systems), and of the difficulty of coordinating and correlating information.

[31]This conclusion has to be drawn from all such commune efforts, whether or not individuals paid directly into a health care fund, as in the case of the "Double Bridge People's Commune" or if the resources were withdrawn before their getting to the family or individual level, as seemed to be the case on the "East is Red People's Commune."

[32]Constitution, Chapter Three, Article 50.

[33]"...the state gradually expands social insurance, social assistance, public health services, co-operative medical services, and other services." Constitution, Chapter Three, Article 50.

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[34]See Blendon, p. 1454.

[35]Ibid.

[36]Brody, p. xi.

[37]This understandable phenomenon became increasingly apparent in our post-interview intra-group sessions as frustrations were expressed over not getting answers to important questions. The questions were important to the University of Illinois group, but may not have been to the Chinese health care personnel.

[38]See pp. 3, 4.

[39]The Preamble to the Constitution, page 3, uses and capitalizes the phrase, Marxism-Leninism-Maotsetung thought.

[40]The medical and surgical procedures of implanting toes for lost fingers illustrates this.

[41]This became particularly clear in cases of abortion because of (assumedly) defective fetuses. Although it was stated that the final decision belonged to the pregnant woman and her husband, it was assumed that such consent would almost always be forthcoming. From notes taken during an interview at the Rui-Jin Hospital in Shanghai which is related to Shanghai Number Two Medical College, July 8, 1980. My conclusion after several such similar interviews reinforces the idea that the concept of informed consent which is so important in the West is not understood in the same way in China.

[42]See note 41. Future-oriented outlook prevails.

[43]In the case of a severely burned worker, extraordinary efforts were made to save his life, because "saving the life of one single worker gives hope and courage to all other workers, even though the life of the burned one is very unpleasant," according to Dr. Ssu in a dialogue at the Rui-Jin Hospital, Shanghai, July 8, 1980. Thus society is, in one sense, the patient rather than the injured person who is being treated.

[44]In North American society, these two values are placed in the reverse order by many people. "Sanctity of life" applies to the fetus, while "quality of life" applies either to the severely injured, "terminally" ill or the aged.

[45]The 1978 Constitution states the principle that the "leading personnel of state organs at all levels...must conform to the principle of the three-in-one combination of the old, the middle-aged and the young." (Chapter One, Article, 14).

[46]See the Sidels, Serve the People, Chapter IV, "The Role of the Community and the Patient in Health Care."

[47]For an early study of "brain washing," see Robert Jay Lifton, Thought Reform and the Psychology of Totalism: A Study of "Brainwashing" in China (New York: Norton, 1961).

[48]Joe D. Wray, "Child Care in the People's Republic of China," in Pediatrics, Volume 55, Number 4, pages 545-546.

[49]See also the Sidels, "Self-Reliance and the Collective Good: Medicine in China," pages 57-75.

[50]This was stressed in dialogue with medical personnel on July 8, 1980, at the Rui-Jin Hospital in Shanghai.

[51]Ibid.

[52]See note 43.

[53]Mao Tse-Tung, "Talk at an Enlarged Worked Conference," pages 18-27.

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[54]See Blendon, "Can China's Health Care Be Transplanted," and Chi-Pang Wen and Charles W. Hays, "Health Care Financing in China," Medical Care, Volume XIV, Number 3, March 1976, pages 241-254.

[55]See Fu Wei-kang, The Story of Chinese Acupuncture and Moxibustion (Beijing: Foreign Languages Press, 1975); and Acupuncture Anesthesia (Beijing: Foreign Languages Press, 1972).

[56]The 1978 Constitution takes cognizance of the problems. See Chapter One, Article 11.

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HEALTH CARE IN CHINA: OBSERVATIONS ON CARE OF THE PHYSICALLY DISABLED

Ann McElroy, M.S., R.P.T.

Health Care in China: Observations on Care of the Physically Disabled

Ann McElroy

Introduction

The material presented in this paper is the result of two weeks' observation of health care facilities and systems in the People's Republic of China. Emphasis is on the physically disabled. Prior to the tour, I had the impression that the physically disabled were not in evidence in China and, therefore, must be hidden away at home--perhaps considered an object of shame. My goal was to find out where these people fit into the health care system and by what means they were aided.

During our study tour every effort was made to obtain information on the care of the physically disabled, most specifically on the use and techniques of physical therapy. For the most part organized observations did not cover the rehabilitation phase of patient care, and answers to questions were usually less than satisfactory; the former because seminars emphasized acute care, the latter because of variances in both terminology and concepts. This very paucity of information does, of itself, tell us something, and lends credence to the impression that very little physical rehabilitation, as we know it, exists in China today.

What is left, then, are unofficial observations from which conclusions can only be surmised, and perhaps incorrectly. This fact should be understood by the reader.

Background Information

The year 1949 marks the date in Chinese history of "liberation" of the people and the formation of the People's Republic of China. As part of a total program of nationalization, western medical schools (primarily missionary) were combined and taken over by the communist government, and integration of traditional (Chinese) medicine with western medicine was mandated by Chairman Mao as one of four tenets of health care policy.

A second tenet of health care adopted after liberation was that of bringing medical care to the masses. By 1965, Mao Tse Tung's impatience with the slowness with which his policies were being implemented in medicine and the slowness with which health care was reaching the rural areas caused him to turn against the intellectuals of the country and take his case to the people.[1] Mao believed that the revolutionary spirit must be rekindled periodically in the youth or it would die; thus the Cultural Revolution was begun.[2] The Red Guard, an organization of militant Maoist youths begun in the schools but spread beyond, was encouraged to lead the overthrow of the establishment, and the Army was ordered not to interfere.[3]

Medical education was already in turmoil as a result of the policies and failures of the Great Leap Forward (1958-1960). During this time "Middle Level Medical Schools," placed in Upper Middle (High) Schools, had been introduced,[4] and increased medical school enrollment was mandated, as were lowered admission requirements. When the economic decline resulting from the failure of the Great Leap Forward forced cut-backs,

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there was much dissatisfaction. Disgruntled students (those who were failing academically and those who failed to be admitted) quickly joined the revolutionary vanguard.[5]

Matters soon got out of hand and by 1967 the country was in turmoil. Workers took over in factories, schools and hospitals--albeit to varying degrees,[6] education was disrupted, and enrolment in upper level medical schools was halted in favor of on-the-job-training or middle level schools. The upper level schools did not reopen fully until 1970, and then under 1968 guidelines. Curricula were cut to three years and students were admitted with primary or junior middle (junior high) school backgrounds.[7] Selection had already begun, and now remained a function of the people through their revolutionary committees, not of the schools themselves.

Some benefits from the Cultural Revolution ensued. First of all, mass health education (a third health care tenet) was successful and resulted in the elimination of such dread diseases as schistosomiasis, thus satisfying the fourth, and final, tenet of health care--prevention. Secondly, the "barefoot doctor" concept, temporarily implemented in Shanghai in 1958, was resurrected.[8] Today there are about 1,600,000 of these introductory level trained doctors serving the people at the grass roots or entry level of care.

Finally, the structure of the health delivery system was improved. At the same time, however, the Cultural Revolution and its ten year upheaval brought a halt to medical progress, and the Chinese medical profession today is still struggling to restore order.

Organization of Health Care

The organization for providing health care services parallels the political structure and provides a network for both delivering care and communicating policies.

The levels of health care are as follows:

Factory or farm:

1. Production Team -- Health Worker or Barefoot Doctor Clinic.
2. Production Brigade -- Barefoot Doctor Clinic or Out-Patient Brigade Hospital.
3. Commune -- Commune Hospital (with facilities for in-patients).
4. County -- County Hospital, where doctors can practice specialties.
5. Province -- Provincial Hospitals, which provide specialized services.

Neighborhood: Care for urban residents who are retired or non-employed is managed by neighborhood facilities:[9]

1. Health Station -- Health Worker Clinic.
2. Neighborhood Hospital -- comparable to brigade out-patient hospital.

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3. City Hospital -- In-Patient facilities.
4. County Hospital
5. Provincial Hospital

Home visits, if necessary, are made by doctors from the Neighborhood Hospital, with special effort made for retired military men or workers.[10] Educational levels for health personnel range from one month (health worker) to 8 years (physician). We were informed that "doctor" has a different meaning in the People's Republic of China than in the United States. Almost anyone with training in primary care is called "doctor" whether that training be months or years. The range of educational preparation is outlined below:

Range of Educational Levels of Health Care Workers Practicing Today

1. Health Worker -- up to one month at a Neighborhood or Brigade Hospital.
2. Barefoot Doctor -- Three months to one and one-half years at a Brigade Hospital.
3. Doctor--
   (a) Five years at upper level medical school following three years of premedical education. (An 8-year curriculum was recently reinstituted at Capitol Hospital Medical School in Beijing).
   (b) Two to three years at upper level medical school following upper middle school (high school).
   (c) One to two years at middle level medical school following elementary or lower level middle school (junior high school).
   (d) On-the-job-training, including army training.

   At the "East is Red" People's Commune Hospital near Hefei there were six doctors. One, a surgeon, had received five years of medical education, two had received three years, and the other three had been trained on the job. Many facilities also had doctor's assistants. Their role and their educational level was unclear. Interestingly, no mention of middle level medical schools was made during our official interviews, although we did meet a graduate of such a program. (Currently, some upper level medical schools are returning to a five year curriculum, and selection of students is now by examination.)
4. Technologist (physical therapist, laboratory technician, pharmacist, x-ray technician) -- "Doctors" with specialized training (three years for physical therapy in special hospitals in Shanghai). During the Cultural Revolution many were selected for training from among the best of the barefoot doctors. The technologist is a highly respected level considered to be between a nurse and a fully trained doctor. Because of the interruption by the Cultural Revolution those practicing in these fields who have had 20 years experience, were recently promoted (grandfathered) to the status of technologist. (In the future such status will be achieved only by examination following a number of

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years--perhaps five or six--of experience after training. Formal training programs are also anticipated, in the form of middle level medical schools, followed by experience, then examination.)

5. Nursing--Two to three years in hospital based nursing schools after junior middle school (junior high school). During the Cultural Revolution many were selected for 2 years of training from among the best of the barefoot doctors. (Currently the three year program which was in effect before the Cultural Revolution has been resumed. Long range plans include advanced specialized education for nurses at the university level.)
6. Midwives--One year of training in a large hospital.

Observations Concerning the Physically Disabled

The morning constitutional, encouraged by the government, proved to be a goldmine for observing the general population. First, there were the physically fit who frequently did their morning exercises or stopped to play a game of rope toss en route to work. Intermingled were the elderly and the physically impaired. Under our Beijing window each morning passed an array of people whom we came to recognize as time went on: old women on once-bound feet walking with legs externally rotated as they could not perform a normal heel-toe gait; an arthritic man out for a stroll pushing his wheelchair ahead of him. The chair was similar to the old style formerly used in the United States, with high wicker back and wicker seat. Many walked with canes, some holding their hands behind their backs, cane in hand and trailing along behind. Canes appeared to be home made, with a variety of handle styles. Most were knobby.

Two hemiplegic walkers passed by every day, one very severe, but both walking with beautiful reciprocal gait patterns--good speed, equal length between steps, good foot placement. Although the foot might be obviously flail and unbraced, the Chinese hemiplegic steps right along. Where and how is this learned?

A few overweight men were seen, but very few overweight women--though one did go by jogging, a form of exercise infrequently seen in China.

Bicycles! Seventy-seven million in China and a third of them can probably be found on the city streets during morning and evening rush hours. To our surprise we saw that one was not a bicycle, but a wheelchair tricycle, and keeping up the same good speed as the others. Once we began looking, we found the wheelchair bikes to be everywhere. They were of different styles. The gears were reattached to hand pedals, some replacing the handlebars so that the cyclist pedaled and steered with the same mechanism. Most, however, had hand pedals separate from the steering mechanism, the latter often a small steering wheel in the handlebar shaft.

In Shanghai, one wheelchair occupant pedaled by hand with a child on his back, a woman squeezed in beside, and his crutches strapped on behind. It was raining and the plastic raincoat was large enough to cover

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only the child. The wheelchair people all appeared to be going about their business in a routine way--probably to or from work. In fact, I witnessed one turning in at the entrance of a small factory one early morning. Also in Shanghai, we saw a tricycle attached to a standard bicycle. The passenger could not pedal and used long extended handlebars to hold onto. The chair was powered by a woman on the bicycle attached. The two bicycles shared a common double-width seat and back.

Many chairs were commercially made, but some were obviously created at home. Each individual must supply his own wheelchair, we were told; however, I talked with one man in Hefei who told me that the government provided his. I met him in a park, and noted the decided advantage he had over those of us on foot. After graciously allowing me to photograph himself and his chair, and answering my questions, he pedaled off by hand to another section of the park and was out of sight in seconds.

Socialization of the disabled with each other occurred, too. One evening in People's Square in Shanghai we saw a whole group of wheelchair riders who had gathered to smoke and talk.

But what of the more severely disabled who are dependent upon others? I saw one old man, who appeared to be totally incapacitated, being pushed to the sidewalk from a crowded Shanghai residence. The wheelchair, again, was the old wicker type with reclining back. Near a commune outside Beijing, we observed wheelchairs of both commercial and homemade styles (one solid metal with solid metal wheels), being pushed along a country road. Our guide said that an old lady, skilled in acupuncture, lived in a nearby village and the disabled came to her to be cured. So, like their counterparts all over the world, the Chinese disabled and their families continue to seek the cure.

The walking disabled were seen on the city streets in fair proportion to the able bodied. The hemiplegics have already been described. More than a dozen were observed, always with that good gait. Only once did we see a hemiplegic walk by bringing the good leg just up to the disabled foot, and with good cause. Closer observation showed what appeared to be a flail quadriceps muscle on the disabled side. A normal gait could not be accomplished, and would have brought about a collapse of the leg, producing no gait at all. What was surprising was that, for all this, his speed was good.

Bracing was nowhere in evidence, except on a few wheelchair riders in the Shanghai area where patients had access to good orthopedic care. One paraplegic was doing a rapid swing-through gait with crutches along a city street. Both feet were flail and unbraced. I wondered about that. The knees had to have been braced, so why not the feet? Was the knee bracing homemade? Probably not, for the crutches were standard and properly adjusted. The victim was probably a polio quad, as we saw many old polio type limps and deformities among the adults. Some cases are now undergoing corrective surgery by orthopedists in the hospitals at Shanghai.

One woman, with a cerebellar problem was walking along a street next to the building walls. She was determined to do her best not to hold on.

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She was alone, I noted, she was brave indeed. An above-knee amputee had rigged a rest for his stump on the hand piece of a crutch and was using the crutch very effectively as a limb. His gait was smooth and rapid. I saw no artificial limbs in use anywhere we went.

Travel by the disabled was managed by means both primitive and inventive. One old woman was being carried onto a train on a large flat basket slung between shoulder poles carried by two men. She had to double up her legs to fit, or perhaps they were contracted. She carried her thermos with her. At the same station a young man with bilateral hip disarticulations was swinging along on his pelvis using two hand crutches. His speed approximated a normal gait, attesting to much practice.

Rehabilitation in China

Physical rehabilitation, as a specialty, whether as part of physical therapy or not, apparently does not exist in China. Dr. Huang Chia-Ssu, President of the Chinese Academy of Medical Sciences in Beijing, told us that before the Revolution there had been a very fine American physical therapist in Beijing who had trained many nurses, but that there was no physical therapy now in Beijing. When asked about a hemiplegic patient observed walking on the grounds of adjacent Capitol Hospital, Dr. Huang explained that the patient had received no special training, but the doctors and nurses helped the patient walk when he was ready to get up.[11] At Beijing Normal University we were told that teaching exercises for the abnormal (disabled) was included in the curriculum of the physical culture school. I gathered that the purpose was more physical fitness than correction.

Wheelchairs were either extremely scarce or non-existent in the hospitals that we visited. At Capitol Hospital in Beijing we saw only one, similar to ours with lift-up foot pedals and seat. At the People's Commune Hospital outside of Beijing, we asked to see a wheelchair. When the one "chair" was finally located, it turned out to be a wheeled cart--a three wheeled one at that. How, then, were stroke patients rehabilitated, we asked? The answer was that they were kept in the hospital until able to feed themselves and walk around. "And, if they don't recover that much," we persisted? Our hosts didn't seem to understand.

The Mei-Shan Iron Works Factory Hospital in Nanking had an active physical therapy department, equipped with short wave, microwave, infra red, low volt electric stimulators--for trauma, and something called ultra-high frequency ultra sound. The latter was being used to treat the eye for improved vision by means of an electrode pad. We saw no exercise equipment. We again inquired about the rehabilitation of the stroke patient, and received the only total program outline we were to hear from any source. The program here consists of passive range of motion, massage, ultra sound to the site of the lesion (presumably the same "ultra sound" apparatus as was used to treat the eye), acupuncture, and tai chi, a slow motion boxing exercise. Was the treatment done there, we wanted to know? "Some treatment must begin in the local hospital," we were told, "immediately, if the stroke is caused by embolism; as soon as the bleeding

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stops and the patient's condition stabilized if caused by hemorrhage. However, the bulk of the treatment is done in a sanitorium." It was explained that the elderly and severely disabled go to sanitoriums, which are located in each city. At last we thought we were on the right track. But the next bit of information dashed our hopes, for we learned that the usual length of stay in a sanitorium was two to three weeks. The sanitorium must be a sort of Chinese waterless spa. Whatever, or wherever, we certainly cannot quarrel with the results. One sanitorium, in Wa Shi City, is now open to tourists, and I hope that some physical therapist manages to get there and will report on what is found.

Surgical restoration in China is another matter, for here China leads the world, both in replantation of amputated limbs, and in salvaging the lives of the severely burned. Results of limb replantation are, admittedly varied, particularly in the upper extremity. Some members of our group examined patients after foot replantation and found, upon manual muscle test, no evidence of residual weakness or deformity.

The highest record of treatment success of the severely burned (third degree burns over 98% of the body) is in Shanghai. Eighty-nine percent of these patients have been saved by early grafting techniques. However, the doctors, in discussing burn procedure, made numerous references to the "horrible residual deformities" of the surviving patients. When questioned as to the ethics of keeping such a patient alive, the answer was that "it was worth it for the morale of the workers--to see that the government would spend so much time and money to save one individual worker's life."

Joint reconstruction is done extensively. Artificial joints are manufactured right at the Iron Works Factory Hospital in Nanking. Use of the big toe to replace a thumb is common. In one recent accident case, the good foot (on a mangled leg) was transplanted to the good leg, the foot of which had been destroyed. Leg lengthening procedures were being done on old polio cases. Polio itself has been eliminated by the vaccine, as in the United States. Spinal cord injury patients are considered to be orthopedic problems, for we were told that they were treated at a special hospital for traumatic injury. We were never able to learn about their early care, or what happened to them afterwards.

Orthopedics and plastic surgery, then, are the answers to rehabilitation needs in China. As Dr. Huang stated: "I don't know how the patient can be helped, if it can't be done surgically."[12]

Physical Therapy in China

The emphasis of physical therapy in China is on the application of physical modalities--particularly electrical. In Shanghai, both orthopedic and burn patients are sent to physical therapy, but apparently following, and not in conjunction with, surgical treatment. We were able to see the physical therapy department at the Mei-Shan Iron Works Factory Hospital in Nanking only through the kindness of our host physician, an English speaking orthopedist, who graciously showed us the department at our request. He was not at all familiar with the area or its modalities. All

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communication with the doctor in charge had to be through translation. The latter was Army trained with three years of physical therapy in Shanghai. With him was another doctor and a nurse, both of whom he had trained.

At our wrap-up session later on in this same facility, the medical staff wanted to know the latest techniques in physical therapy being practiced in the United States. I started by explaining that we placed more emphasis on exercise techniques and rehabilitation than on physical modalities. This drew a blank. I said we were using electrical stimulation, using acupuncture points but with surface electrodes, for the control of pain. I thought this would provoke questions, but again drew a blank. Someone in our group mentioned biofeedback, and ears immediately picked up. They wanted to know what it was. I explained briefly to an audience that both understood and showed enthusiasm for the new technique. Someone in our group said later that he would be willing to bet that biofeedback would be in use in China very soon.

Summary

The rehabilitation phase of patient care in the People's Republic of China is varied. For the most part, it appears that patients are assisted by hospital staff (doctors and nurses) until independence in ambulation and self care is reached, this occurring before being discharged. In some areas patients are treated by an elaborate program of limited physical therapy, acupuncture, and boxing exercise, which is begun in the hospital and continued in a sanitorium.

A natural form of "rehabilitation" evidently takes place, which achieves unconsciously those aims toward which western physical rehabilitation programs strive. All but the acutely ill patients, for example, are dressed in their own clothing while hospitalized, even those limited to bed. While the reason for this is no doubt practicality, one step in the rehabilitation process has already been taken. The absence of wheelchairs in the hospital setting must surely facilitate ambulation--and, indeed, may be the answer to why the disabled exhibit such excellent gait patterns, as repeatedly observed.

But there is another, perhaps stronger reason, I believe, why "natural rehabilitation" takes place. This is the philosophy upon which the present day Chinese society is founded. A part of this philosophy is the concept of tzu-li keng-sheng--regeneration through one's own efforts, or self-reliance.[13] We found much evidence that the disabled will get out and around if they can devise any way to do so. Furthermore, in a society where survival is still not to be taken for granted, there is little chance of pampering the handicapped.

Another concept which surely must promote the return of the disabled to society is that everyone is expected to make his contribution. Children do their share, the elderly care for the children, and, although I never heard it expressed, it stands to reason that attitudes toward the disabled, and more importantly of the disabled toward themselves, would comply.

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"To each according to his own ability" is an oft quoted phrase. If this is so, then the disabled will work at whatever they are able. Sidel states that one of the responsibilities of the neighborhood committee is to find work for the disabled.[14]

Interestingly, Sidel's reference refers to placement of the deaf and dumb, and inquiries by our group as to placement of the physically handicapped brought responses which also referred to the placement of the deaf and dumb. This apparently has been the largest and most obvious vocational training and placement program. Yet the vast numbers of handicapped seen on the streets, apparently going to and from work, make me believe that most handicapped persons do work if able. Perhaps their addition to the work force is so taken for granted that only more dramatic job placement successes are recounted.

Finally, influencing the care of the handicapped is the concept of mutual aid. Physically disabled adults or children, like the elderly, are cared for first by the family. If the family is unable or there is no family, they are then cared for by the group (brigade or neighborhood); only if that is not possible, are they cared for by the government in nursing homes. This spirit of mutual aid and cooperation is impressed upon children beginning in kindergarten, where songs and dances tell the benefits of helping each other. Arthur Galston, who lived and worked for a brief period on a commune, and who toured educational facilities extensively, tells of school children volunteering to help physically handicapped children, some constructing a cart for a child to ride in and vying for the responsibility of the child's daily care.[15] A similar story of help by both teachers and classmates is recounted in the magazine China Reconstructs.[16] Still, some of the old superstition does persist, for Galston also tells of the semi-rejection of a pre-school child who had been born with two thumbs on one hand.[17]

Both Sidel and Galston describe the concepts in detail, analyzing their impact on society and on the individual, and drawing comparisons with the United States. As both point out, we could learn much from the Chinese.

In conclusion, it is my belief that because there exists in China a system of family and neighborhood cooperation, a reverence for self sufficiency, and a dedication to productivity, a natural form of rehabilitation takes place which allows the handicapped individual to take his or her place in the community. The physically disabled, far from being hidden away, are not noticed simply because they blend in so well with the rest of society.

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CHINA'S REVOLUTION IN HEALTH CARE: WILL IT CONTINUE?

Madge Attwood, Ph.D. R.N.

China's Revolution in Health Care: Will It Continue?

Madge Attwood, Ph.D., R.N.

Introduction

Since the People's Republic of China opened its doors to the West a decade ago, interest has been keen in finding out how a country with so many people and so few economic resources could, in 30 short years, produce a health care system that provides some level of health care to nearly all its one billion people.

In some areas, China's progress has been nothing short of spectacular. Venereal disease, which has reached epidemic proportions in the U.S., has been nearly wiped out in the People's Republic. According to Dr. Ssu Chia-Yu, cases of gonorrhea and syphilis are so rare in the People's Republic, medical students must learn symptoms and diagnostic procedures from text books. Schistosomiasis, the scourge of rice growing developing nations, has been eliminated in most provinces except those in southern China, and there, though endemic, it is under control.[2]

The infant mortality rate (IMR), considered a reasonable indicator of the health of a nation, has declined markedly. Lampton estimated the infant mortality rate (IMR) in the 1970's to be about 60 deaths per 1000 live births in the first year of life, drawing his estimate from the combination of a 1959 report of the Chinese Medical Association indicating an IMR of 70/1000 and scattered data subsequent to that time.[3] In certain geographical areas the infant mortality rate is considerably lower; e.g., in 1975, it was reported to be 11.85/1000 in Shanghai,[4] comparable to the 1979 U.S. rate.[5] Considering that the pre-revolutionary IMR was estimated at 200/1000, i.e., 1 out of 5 babies born died on or before reaching one year of age, the change is remarkable.[6]. While data from China should be considered conservatively because of differences in data gathering methods and interpretation, nevertheless all reports from medical visitors concur on the improvement in the general health of the people.

The significance of these indicators of improved health is best understood within the context of pre-revolutionary China. The people were plagued with cholera, leprosy, meningococcal meningitis, relapsing fever, tuberculosis, typhoid fever, and typhus. Viral illnesses included encephalitis, smallpox and trachoma, while parasitic diseases such as hookworm, filiariasis, malaria and schistosomiasis were widespread. Venereal disease was common, the incidence approaching 10% among the frontier people in remote provinces.[7,8] Nutritional diseases such as beri beri, astromaliacia, pellagra, scurvy and illnesses due to calorie and protein deficiencies were common.[9]

Thus the changes observed by visitors who had visited pre-revolutionary China and who have recently visited the new China are stunning, and made even more dramatic by the 20+ year gap in communication which prevented outside viewing of the failures as well as the successes of China's health policies.

Not only has China brought contagious diseases under control and improved the likelihood of infant survival, she has become a world leader

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in the replantation of severed limbs and the treatment of patients with severe burns.

At the Sixth People's Hospital in Shanghai, severed limbs have been successfully replanted since 1963, with a survival rate for limbs of 83.2%. Replantation of severed digits and transplantation of toes requires more complex techniques, yet in the 1960's the success rate was greater than that of any other country in the world. With the use of microsurgery in 1973 to replant severed digits, the survival rate has risen from 57.5% to 92.3%.[10] Transfer of toes to the hand has now progressed to the point where it is considered standard procedure for restoring use to hands on which fingers have been lost. A typical procedure is for the second toe to be transplanted to reconstruct the thumb.[11,12] During our visit to the Sixth People's Hospital in Shanghai, we participated in patient rounds and talked to a patient whose hands had been crushed in an industrial accident. All the digits from both hands had been amputated, but two toes had been replanted on his right hand, enabling him to have grasping function and thus eat, dress himself, write and generally be self-sufficient.

China is a leader in burn therapy. Horn[13] described the recovery of a Chinese patient with burns over 89% of his body. In a meeting with Dr. Chang Chuan-Kiun, Chief of Dermatology at Shanghai Rui-Jin Hospital, we were informed that a patient with 3rd degree burns over 98% of his body had been saved with the use of microscopic autografts and heterografts as well as a special procedure for achieving fluid and electrolyte balance. Fluid replacement, infection control, and nutrition are of course, involved in the treatment. Saving a patient with such severe burns introduces a moral question about quality of life since the scarring produces extreme deformities. Dr. Chang acknowledged this as a problem, but indicated extreme measures were warranted in order to reinforce the workers' belief that the government's leaders are committed to the welfare of the workers and will spare no effort to come to their aid.

Health Policies

The transformation of China from the "Sick Man of Asia"[15] to a nation with an enviable record of progress in health care in just two decades is the story of starts and stops; of changing political structures; of a tug of war between scientifically trained physicians and Communist Party leaders.

In prerevolutionary China, the only medical care available to most of the rural masses and to the majority of urban poor was provided by practitioners of traditional Chinese medicine and herbalists, many of whom were inadequately trained even in traditional methods. Western trained physicians were concentrated in the cities as were the minimal medical resources available.[16]

Because of the sad state of the health of the people, health care was high on the priority list of Chinese Communist Party leaders when the new government came into power in 1949. At the first National Health Congress in 1950 a set of principles was adopted which to this day provides the framework for the type of health care promoted. For the most part

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the principles were not innovative, but were the legacy of a medical system that emphasized prevention, use of paramedics, and mobilization of the masses. The only principle which deviated from historical practice was the mandate to integrate traditional Chinese and Western medicine.[17]

Sidel described the four precepts as follows:

1. Medicine must serve the working people...workers, peasants and soldiers.
2. Preventive medicine must be given priority over curative medicine.
3. Practitioners of Chinese traditional medicine must be "united with practitioners of Western medicine."
4. Health work must be integrated with mass movements.[18]

China has been notably successful in getting health care to the people through the use of paramedics. Rural paramedics (barefoot doctors), are common people, typically farmers, chosen by their comrades because of an affinity for ministering to the sick or injured. They are given 3 months to 1½ years of training by a physician in regular classes at the county or commune level or instructed by mobile medical teams. Sent back to their homes to continue the work they did before paramedic training, they work only part-time as barefoot doctors, undertaking preventive health measures, treating as many as 20 common illnesses occurring locally and providing first aid. For example, when efforts were made to improve sanitation in order to control parasitic diseases, explicit procedures for decontaminating urine and feces prior to use in the field as fertilizer were developed by sanitation experts at the national level and disseminated at the local level by barefoot doctors. Barefoot doctors may also distribute birth control pills, devices and information and give immunizations. If an epidemic is threatened, the barefoot doctor becomes the communication channel for control and prevention at the local level. Trained only to treat common disorders, paramedics refer patients with more serious conditions to commune or county facilities.

How effectively barefoot doctors carry out their charge depends on the confidence patients have in them. Case studies abound on the heroics of barefoot doctors, but we learned that the system is far from perfect. In terms of referral services, the county hospital staffs are strained, patients requiring hospitalization may have long waits, and the peasants sometimes resent what they consider to be inferior care. As memories weaken of prerevolutionary abuses, and a new generation learns of abuses only second hand, and as expectations of higher quality health care rise, dissatisfaction is likely to grow. Nevertheless, the system has proven to be an efficient way to extend scarce medical personnel at minimal cost and to provide timely treatment for common health problems.

Preparation of paramedics on a large scale was somewhat slow in coming. In fact it was not until the Cultural Revolution of the 1960's and 1970's that the fact that a large segment of the population had unmet health needs was jarred into public consciousness. Preparation of paramedics in significant numbers began near Shanghai in 1968 and has increased until today it is estimated that 1,463,000 have been trained.[19] It took almost 18 years for this health policy to be successfully implemented, requiring public awareness of the need as well as higher rural incomes to finance the movement.

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Health care in rural areas is financed primarily by production brigades with money from public welfare funds. At Double Bridge commune near Beijing, we were told that the cost of health care is jointly shouldered by individual members of the commune and the commune as a whole. A prepaid system is in place, costing the peasants 1 yuan per year, roughly equivalent to $.60, while the commune allocates 5 yuan per year per person (about $3.30) for health and welfare. Funds are pooled and used collectively.

The amount to be contributed to the welfare fund is determined at the commune level, but the government dictates the percentage of production to be set aside for welfare purposes. The result is that health care is linked to production: the lower production is, the fewer the funds available for maintenance of health care facilities.

The health facilities in the 2 communes we visited were in dramatic contrast to each other. Double Bridge commune had a 2 story, 30 bed brick hosptial (and one hospitalized patient), an operating theater, a poorly equipped gynecological examining room, a pharmacy, and a laboratory. The ambience was gray and gloomy. The one physician with whom we conferred was extremely cooperative and generous in sharing information, but appeared sad and discouraged.

In contrast, the medical facilities at Dong Fang Hong commune near Hefei were brightly painted in blue and white, cheerful, well equipped by Chinese standards, even boasting an antiquated x-ray machine. The commune hospital had 20 hospital beds and was filled; in addition we were told that 50-100 patients were seen daily as outpatients. Dong Fang Hong commune appeared to be more prosperous if better maintained and utilized facilities are signs of prosperity. Generally in communes patients pay a small sum for visits to the health station. However, the officials at Dong Fang Hong commune explained that all members of their commune receive free medical care, including maternity care and childbirth.

Preparation of Health Personnel

Medical Education

Preparation of professional medical personnel has undergone substantive changes. China has had essentially a two track system of physician preparation: those prepared according to traditional Chinese practice based on philosophical rather than scientific premises (referred to as traditional Chinese medicine) a heritage of more than 4,000 years, and those prepared according to scientific Western theory and methods (referred to as western style medicine) brought to China in the 19th and early 20th centuries.

Upon graduation from senior middle school (roughly equivalent to our high school), students who wish to continue on to higher education in universities must take an entrance examination. They may choose an area of specialty e.g., medicine (traditional or western), engineering, etc. Once admitted, however, they may not change the specialty.

Criteria for admission to any type of higher education include moral, intellectual, and physical qualifications and are based in part on appraisals by people where the individual works. Candidates must be under age 25

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with at least 2 years of rural or factory work experience. They may also be eligible if they are up to 30 years of age with special skills or good job experience, were graduated from senior middle school in 1966 and 1967 when unversities were closed, or are students currently enrolled in senior middle school who have performed exceptionally well and are recommended by their school. Today the moral and physical tests are undertaken only when the entrance examination is passed. This is in contrast to admission standards during the Cultural Revolution when political (moral) ideology was paramount in admitting students. Efforts continue to be made to make education available to the rural masses as well as to the often better prepared urban candidates. When applicants are equal in all qualifications, preference is given to workers and peasants, to children of worker and peasant families, and school graduates who have already settled in the countryside.[20]

On the other hand, medical schools are required to give priority admission to barefoot doctors.[21] Applicants who take the entrance examination must achieve a high score, but if the score is not high enough for entry to medical school, they may still be eligible for admission to a nursing or health technician program.

Medical school preparation today ranges from 3 to 8 years after senior middle school. During the Cultural Revolution western medical education was shortened to 3 years. This was a period of great turmoil, with western type medical faculty accused of being insensitive to the needs of workers and peasants and establishing artificial barriers to preserve the elitism of medical education. Many medical faculty were required to join mobile medical teams to train barefoot doctors in the rural areas, or simply to work as farmers in the communes. At Capitol Hospital Medical College in Beijing, four years elapsed without any physicians being trained, and its 8 year curriculum was slashed to 3 years.[22]

Other medical schools were subjected to similar curricular surgery. The number of subjects offered was reduced and content of courses shortened. For example, at Zhongshan Medical College in Guangdong Province the number of subjects was cut in half; from 30 to 15. This drastic change was accomplished by eliminating "unnecessary subjects" and by omitting or shortening the content of other subjects. At the same time, special courses were offered if a high number of cases of a particular malady was reported in the area.[23] Shortening preparation was intended to remove the "fluff" from medical education and to make it more practice oriented and relevant to the people.

The "open door" policy enacted to make medical education more responsive to peasants and workers has created problems in fostering quality education. To implement the policy, commune officials are encouraged to recommend their most capable barefoot doctors, thus opening up medical schools to the common people and facilitating greater career mobility. This would seem to be highly desirable. But in our discussions with medical personnel we were informed that prior to the 1977 educational policy in which emphasis on academic aptitude was renewed, students were frequently admitted less on their mental ability than on their moral and political attributes, social-class background, and judgments of fellow workers

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and peasants. In practice, paramedics from rural areas often had inadequate academic and scientific backgrounds for advanced education and had difficulty with the concentrated curriculum. With the new emphasis on academic achievement and with a new policy permitting the lengthening and restructuring of medical curricula, some of the problems in providing better quality medical education should be resolved.

As a consequence of these conflicting concerns, i.e., increasing efficiency and relevance in medical education, providing equal opportunity to study medicine, and attaching importance to quality education, medical education has been in turmoil for several years. We were advised that the 8-year medical school curriculum has now been reinstated at Capitol Hospital Medical College even as the four year Shanghai Second Medical College curriculum has been restructured to include a 2½ year premedical period and 1½ years of clinical training.

A concerted effort is being made to restore the dignity and perceived value of traditional Chinese medicine. Today all medical students study both Chinese and Western medicine. Western trained and traditional Chinese practitioners work side by side in hospitals, clinics and mobile medical units and patients can choose to be treated by either traditional or western methods. Support is given for using western scientific methods to study traditional treatments such as acupuncture and herbal medicine and institutes to conduct research on traditional Chinese medicine have been established in a number of provinces. As a consequence, an impressive body of scientific literature on the use of traditional Chinese medicine is accumulating, as, for example, the research being done on the use of acupuncture for anesthesia and diagnostic purposes. One of the aims of integrating Western and Chinese medicine is to combine the best elements of both to reduce the deficiencies of each in order to create a unique, new type of improved health care for the people of China.[24]

Nursing Education

Prior to the Cultural Revolution, nursing education, like hospital based diploma nursing programs in the U.S., was 3 years long. As with other curricula during the Cultural Revolution, nursing programs were shortened, and much concern about the quality of nursing education was expressed by nursing leaders. Thus, in keeping with the renewed academic emphasis the third year was reinstated in some programs in 1980.

According to the nursing supervisor at Rui-Jin Hospital, students in the 2-year curriculum go to the wards for clinical experience for a short period right after enrollment. In the first year they also receive instruction in basic medical sciences. In the second year, increasing amounts of time are spent in different wards.

The three-year curriculum includes basic nursing courses, preclinical work and clinical practice in the first year. In the second year general nursing care is continued, and an area of specialization added. In the third year student nurses again work on different wards under guidance. In addition to nursing duties comparable to U.S. nurses, China's nurses draw blood, start I.V.'s and have both the right and responsibility to order medications and laboratory work in the physician's absence.

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Advanced education for teaching is available to nurses in Shanghai. The best graduates are selected for 2 years of advanced clinical specialization and are then invited to return to their nursing schools as teachers. Nurses may also go on to medical school if they can pass the rigorous entrance examination.[25]

A goal of the political leaders has been to eliminate status differences between workers at all levels. According to Dr. Ssu Chia-Yu, there is no status difference between doctors and nurses despite differences in education and responsibility-only different kinds of work. In fact, once a week, all the doctors and nurses at Rui-Jin Hospital cooperate in cleaning the hospital. Further, the salary scales of physicians, nurses, and health technicians are roughly comparable. At Rui-Jin Hospital, physicians and supervising nurses are paid 80 yuan per month (about $54); technicians receive 70 yuan and staff nurses 60 yuan.[26]

Technician Education

Utilization of health technicians is far more limited in the People's Republic than in the U.S. For example, respiratory therapy is not even an acknowledged discipline. Perhaps the de-emphasis on high technology in health care has limited the need for allied health personnel. Only the larger hosptials have even such basic diagnostic tools as x-ray equipment. However, there are preparatory programs for physical therapists, laboratory technicians and x-ray technicians in middle grade medical schools in programs that are adjunct to the medical school. Prior to entering technician training, the student has completed 3 years of senior middle school. After technician preparation and after having worked 5-6 years, a technician can be promoted to technologist.

Generally, the best of barefoot doctors on communes are chosen to receive specialized training in midwifery, radiology, laboratory work or physical therapy. However, some nursing schools are moving toward providing specialized training in certain areas. As this occurs, technician training independent of nursing may change.[27]

Supply of Health Workers

There is a shortage of health personnel in China despite its incredible progress in preparing personnel. At the same time, the balance of higher quality health facilities still lies with the urban areas. Nevertheless, in 1980 there were about 1,214,000 hospital beds in rural areas compared to 11,000 in 1947. A total of 2,798,000 medical and health personnel are now claimed, of which 1,485,000 doctors, nurses and pharmacists work in the countryside.[28]

Politics of China's Health Care

China's health care system has been transformed from one of concentrated care for a privileged few and no care for millions of common people to one that provides accessible, though modest, care for nearly 1 billion citizens, and that has eliminated most of the plagues that debilitate people of developing countries. This progress has prompted political analysts to try to ferret out the causes for such a spectacular change.

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It is tempting to point to a few policies and attribute undue value to their impact. But the story of China's change is extremely complex. Though western observers view China's progress with admiration, the narrative is one of high ideals coupled with tensions between groups with conflicting values; of a leader who, with charisma, humanistic philosophy, and political astuteness was able to mobilize the common people and to some extent control ambitious bureaucrats and policy makers; of economic policies that sometimes indirectly created China's unique health system.

According to Blendon, 10 economic policies have shaped China's health care:

1. The use of capital resources to develop heavy basic industries
2. Minimizing imports
3. Development of public and community services at the expense of individual consumer goods
4. Ban on private economic activity
5. Consolidation of small, private farms into a few large, publicly owned communes
6. Assignment of professionals to career locations
7. Restriction of geographic mobility
8. Maintenance of a large home-based army
9. Control of wages
10. Exclusion of "free" or independent professions[29]

These policies, which mirror the workings of the broader economic system have had both direct and indirect consequences for health care. For example, the use of funds to develop heavy industry made funds unavailable for medical technologies such as surgical equipment, x-ray equipment and CAT scanners; and unavailable for even such modest equipment as typewriters, dental equipment and laboratory equipment.[30]

The ban on private economic activity has prevented the development of a dual health care system; i.e., one system growing out of pressures for quality from better educated, middle income families, and a second system for the rural and urban poor. At the same time, the exclusion of independent professions has brought medicine under the control of the government and has prevented the development of the kind of restrictive regulations which have prevented nurse practitioners, physician's assistants, and paramedics in the U.S. from being utilized to provide primary care even on a limited basis. Consequently, China was able to train its barefoot doctors in huge numbers, give them the honorable title of "doctor", and use them to provide service for common problems at the grass roots level that in the U.S. is restricted to highly educated physicians.

The assignment of professionals to career locations and the restriction of geographic mobility has minimized maldistribution of health workers while preventing the development of pockets of poverty in city slums. In the U.S. some affluent, desirable communities have a physician on every corner, figuratively speaking, while some rural communities have no primary care practitioners at all. This situation simply does not exist in China because health professionals are assigned career posts and can change only with special governmental permission.

Governmental control of wages has prevented the escalation of health care costs arising from labor and union negotiation. Because the government sets salary levels, Chinese salaries constitute less then 25% of the total hospital bill compared to 55% in the U.S.[31]

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Finally, the organization of small farms into publicly owned communes and the retention of a home based army have made available a network of resources that can be utilized to carry out mass campaigns for labor intensive projects to eliminate health hazards; for example, destruction of breeding sites for disease carrying pests and treatment of human waste before use as fertilizer.

Health Policies

Mao's approach was marked by great progress and stops. Dissatisfied by failure of political leaders to institute his policies, he launched the Cultural Revolution before testing out the idea--with resulting social chaos. Mao's form of socialism was characterized by conflict among groups, by using noninstitutional ways for achieving objectives, and by intensively trying to change people's attitudes. He fostered mass participation in national decision making and policy implementation and, using a rural thrust to produce economic growth, harnessed the energy of the nation by appealing to the masses and to group goals (build a strong socialist society). Part of his genius lay in involving people at the grass roots level, thus being able to win a large amount of popular support from the masses against a small number of elite.[32] Oksenberg attributes the success of China's health policies to Mao's personal commitment to health, the existence of a mass campaign approach, and the development of a large public health bureaucracy infused with concern for the public interest.[33]

Although the successes during Mao Tse-Tung's leadership were impressive there were also failures. The "Great Leap Forward," of the 1950's which stands out as one of the more obvious failures, nearly plunged the nation into economic chaos. The Cultural Revolution of the late 1960's and early 1970's got out of hand and resulted in sometimes wildly destructive behavior. Some of our hosts felt that education in China had been set back 10 years or more because of the Cultural Revolution. Yet happenings in the Cultural Revolution also made public the many unmet needs of the masses, resulted in training hundreds of thousands of paramedics to staff health stations at the grass roots level--in communes, factories, and neighborhood health centers, and brought the educated elite to interact with the rural underprivileged.

China's Health Traditions

Lampton points out that China's health policies have evolved from the "accumulated experiences and resources of Chinese traditional diagnostic and therapeutic practices, western style medicine and the revolutionary health system built by the Red Army in the 1930's and 1940's."[34] The theory and practice of traditional Chinese medicine is ancient. It was apparently first recorded in the "Yellow Emperor's Classic of Internal Medicine." While the exact date of this work is unknown, it was written as a dialogue between the Yellow Emperor (2697-2597 B.C.) and his court physician in which the physician explained the origins of and cures for disease as well as the key for maintaining health. The central idea of traditional Chinese medicine is preventing illness. Thus Mao Tse-Tung's emphasis on prevention is completely consistent with this tradition.[35]

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Traditional Chinese medicine, widely accepted by the Chinese people, employed the use of herbs that could be grown on Chinese soil and techniques such as acupuncture that did not require expensive, technologically sophisticated equipment. Therefore, emphasizing this type of medical care, giving it prestige status and urging its integration with western style medicine was also a logical development for an impoverished country.

The need to affirm the nature of traditional Chinese medicine grew out of the disrepute into which it had fallen as increasing numbers of western trained physicians rejected it as unscientific at the same time that their political power grew. By the time of liberation, there was little pride in the heritage of traditional Chinese medicine or in western medicine. Yet western medicine was regarded with ambivalence because of its roots in humiliation and weakness--an outcome of its association with missionary medicine, foreign invasion and exploitation.[36] Thus Mao's charge to integrate traditional and western style medicine was an effort to create a new, uniquely Chinese medicine that would use the best of both medical approaches.

The Red Army, in its guerrilla warfare of the 1930's and 1940's was faced with limited economic resources, enormous health problems and few physicians. Consequently, the medical system it built was of necessity based on the use of paramedics, an emphasis on prevention, the use of traditional medicine and mass mobilization. This tradition provided the basis for future health policy and set the stage for conflict between the urban oriented curative health system led by educated, western trained physicians and a guerrilla medical tradition.[37]

The presence of a well practiced tradition paved the way for acceptance of principles with which masses of the people were already familiar. Mao's political skill made it possible for these principles to prevail even in the face of resistance by the westernized medical leaders who wanted to emphasize values familiar to us in the U.S., namely curative medical care, research on exotic conditions, and use of costly technological inventions.

Mao Tse-Tung's Philosophy

Although historical evolution provided the foundation for the 4 tenets of health that shaped the character of post liberation health care, the success of their implementation was influenced by Mao's commitment to health care. Mao Tse-Tung was concerned about people--especially the poor, the sick, the hungry, the disenfranchised. He emphasized cooperative enterprise and a government organized to enable mass participation by the people. Mao's philosophy of "Democratic Centralism" tested in Yanan Province between 1937 and 1949, was based on the principle "from the people to the people" which meant that the masses had to be consulted, decisions made on the basis of that consultation, and then the decisons explained to the masses. In other words, in modern organization jargon, a system was developed to foster two-way communication.

Mao was also able to persuade the common people that the way out of their misery was through cooperative methods, and part of his persuasiveness grew out of a belief that the peasants first had to believe in them-

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selves. To encourage self confidence in Yanan Province, the peasants were urged to express their anger and frustration over their oppressive landlords in what was known as "Speak the Bitterness" sessions. According to Del Rio, at first the peasants were hesitant, then after they started it was as if flood gates had burst. Thus Mao legitimized openness and ventilation of anger, and in so doing won the hearts and loyalty of the people.[38]

After generations of learning to survive by "kowtowing" to whomever was in power and suppressing their anger, the peasants would never have spoken out if their leaders had chosen an authoritarian, domineering style of leadership. The cadres (bureaucratic officials) were required to go to the villages, live with the peasants, work with them and earn their respect by learning from them. The peasants were taught new ways by demonstration, not by being commanded, an approach which further encouraged democratic participation.[39]

These principles underscored post-liberation health policy and help to explain the national organizational structure that evolved. They also help to explain the general sense of relative contentment, rather than sullenness and hostility that recent foreign visitors have consistently observed.

Adding further to confidence of the masses was the economic and political organization of the communes. In contrast to the Soviet model, what the peasant produces through collective efforts, stays in the commune to develop schools, technical institutes, modest modernization of agricultural methods, health clinics and commune health centers.[40] Thus the peasants at the local level are able to experience the fruits of their labor, although production is subject to taxation.

Although the influence of Mao Tse-Tung's philosophy is seen throughout the policies and practices of health care in China, the development of China's health care system did not always proceed according to Mao's wishes, nor was he totally successful in shaping health programs during his regime. The conflict between Mao's mandates and the values of the professionally dominated Ministry of Public Health is an example in point. The Ministry of Health, in 1957-58, chose to subtly ignore his wishes or execute them selectively.[43] This led to the following attack on the Ministry of Health by Mao on June 26, 1965, shortly before the Cultural Revolution.

> Tell the Ministry of Public Health that it only works for 15% of the populaton of the country and that this 15% is mainly composed of gentlemen, while the broad masses of the peasants do not get any medical treatment. First, they don't have any doctors; second, they don't have any medicine. The Ministry of Public Health is not a Ministry of Public Health for the people, so why not change the name to the Ministry of Urban Health, the Ministry of Gentlemen's Health, or even to the Ministry of Urban Gentlemen's Health."[44]

Known as the "June 26 Directive," the statement presented several suggestions for action.

> Three years in medical school after primary school are enough.
>
> Less men and materials should be devoted to....highly complex and hard to cure diseases--and more should be devoted to the prevention and improved treatment of common diseases.

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> All doctors except those who are not extremely proficient should go to the rural villages to practice.[35]

These proclamations led to the chaotic reformations of medical education and practice described earlier; but at the same time they stimulated creative efforts to prevent and treat common ailments.

National Network

The political structure established after liberation became the framework for a powerful national network of communication. Broad general goals and policies are developed at the national level by the communist party elite and are not subject to review. Translation of these goals into concrete programs is left to the lower units of government; thus innovation, flexibility and local initiatve are encouraged. A critical cog in the Chinese Communist Party (CCP) political machinery is commmunication with the masses of people, for the aim of policy is to change attitudes as well as practices and attitudes can be changed only if the people are involved. Thus small study groups are formed at the grass roots level. In the rural areas these occur in the production teams; in the cities in the neighborhood lanes. During the 1970's the groups usually met once a week to study official ideology, latest policies and newspapers and to practice criticism, including self-criticism. Individual suggestions and reactions from the common people on the best ways to pursue goals and accomplish tasks were both solicited and heard.[41]

However, today there are indications of less interest and activity among study groups. In fact, we were told that many study groups tend to meet sporadically in contrast to meeting weekly during the Cultural Revolution. This trend is unfortunate since the meetings provide a channel for feedback from the people to the policy makers as well as from the policy makers to the people.

Administratively the national government is organized into provincial level units which include provinces, autonomous regions, and three centrally administered cities. Some provinces have special districts, generally consisting of one or two cities and a dozen or more counties. The cities are further organized into districts which are in turn divided into neighborhoods. The neighborhoods are made up of residential units and the residential units or lanes are comprised of resident groups of 15-40 households.

The counties similarly are divided into three administrative levels. The production team, generally a natural village of up to 25 to 40 households, is the basic unit. The next level is the production brigade which may encompass as many as 100 production teams. Finally, the commune will be comprised of 10,000 to 60,000 people organized into about 15 brigades.

The health care system is regionally administered and follows the political organization of the CCP. Health care services are provided at every level, with barefoot doctors in the rural areas and red medical workers in the cities providing care at the basic levels, and more highly trained health personnel providing care at the commune, county and city

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levels. Supervision and control is both vertical and horizontal, ensuring that party policies will be implemented.[42]

Questions About the Future

Today Maoism is being de-emphasized and the near-deification of Mao downplayed. The effect of this change on China's health care policies remains to be seen. Among the questions of the future are:

1. Will communications to and from the common people continue to be fostered? The ingenious political network that has also served well as a health policy communication network has been an important factor in developing commitment to change among China's vast population. It has also been important in mobilizing the people for mass campaigns to treat and prevent common illnesses. There may be a question of the process becoming weakened if less participation in local study groups becomes a universal phenomenon.
2. Will the basic principles of Mao's philosophy endure without the association with his public image? From our observations, commitment to the integration of Chinese and western style medicine is a source of national pride. That pride is reinforced by scientific research into traditional Chinese medicine. The use of paramedics is well established and emphasis on prevention has proven exceptionally successful. On the other hand, problems with the type of medical education advocated by Mao are giving way to a return to the more traditional form of preparation. Without the dynamic leadership of a philosopher/politician such as Mao Tse-Tung, China is likely to have periodic struggles for power by an elite such as the "Gang of Four." The "Gang of Four" engendered the hostility of the people by their self indulgence and lack of sensitivity to the people's real needs while trying to implement policies supposedly in the interests of the masses. The question then becomes one of who will win out in these struggles without a leader like Mao?

The genius of Mao's leadership was his overriding belief in the intelligence, creativity, and collective power of the masses of common people. His commitment to their development through free speech, through involvement in policy influence, and through education rather than domination are both consistent with universal principles of good organizational management and keystones to the success of China's health policies. But will China's current leadership, as it attempts to modernize the nation, retain those principles of Maoism that are consistent with human development? If these truths are remembered, valued, and acted upon, continuing creative solutions to China's enormous health challenges are likely to be ongoing.

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